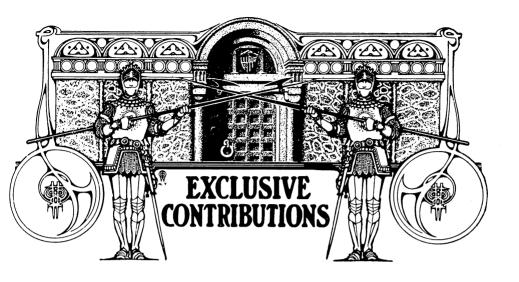


JOHN NUTTING FARRAR, I.I.S., M.D.



The Technique of Inlay Making by the Direct and Indirect Method.

By F. T. VAN WOERT, M.D.S., Brooklyn, N. Y.

V

The Technique of Making Cavity Models and Matrices for Porcelain Inlays.

Having secured an accurate impression of a cavity, the next step is the reproduction of the same in some material that will not shrink nor change in form, and which at the same time has sufficient strength to permit of swaging or burnishing either platinum or gold into it without chipping the margin or cracking through its entire body. This means considerably more resistance than is generally appreciated, particularly in the swaging process. Take, for instance, the pressure in a Brewster press. If a ½-inch hole is drilled through the bottom of the cup which holds the dental lac, and the cup is filled with Melotte's metal and chilled, it can be driven out of the cup through the hole with a rubber water plug such as comes with the press for swaging purposes, which discloses the possibilities of condensing or changing a die which does not possess the power of resistance.

There is considerable controversy as to which is the best or most available material for making cavity models. The oxyphosphate cements are used by many; a silver-tin or copper amalgam by others; while a few depend upon Spence metal, or in rare cases a silicate cement.



In conversation with one of my confreres not long ago, he informed me that he had made a great discovery, to wit: that Archite cement is good for something, and in astonishment I asked, "What?" He replied: "For dies in inlay work." I had none of it on hand and did not try to verify his statement, and while I can imagine it might be possible to use up old stock in this way, I would not advise ordering any new as ther are other cements, and less expensive metals, which are better. The oxyphosphate cements make beautiful sharp dies, and where the matrix is to be formed by burnishing alone, it is without



Fig. 42.

doubt the best material for the purpose, but if the matrix is to be swaged it is unreliable as it is apt to condense under pressure; that is to say, high pressure, such as is exerted in a Brewster or similar press.

Swaging Matrices by Kand. Swaging, however, can be done by the use of an instrument such as is shown in Fig. 42. The point is of soft, preferably velum rubber (Fig. 42a) which should be vulcanized to and at the same time with the shank (Fig. 42b) and into the shank is

vulcanized a small brass machine screw (Fig. 42c). This when finished can be screwed into a suitable hardwood handle, which can be had at most of the hardware stores or from a tool supply house. This makes a most admirable instrument for swaging a matrix by hand in any kind of a die.

The method of using is as follows:

First, fix the die into a base of either plaster or modeling compound, preferably the latter, large enough to form a good support (Fig. 43), when placed upon the laboratory bench or table.

Next, place over the cavity in the die a small piece of goldbeater's skin, or china silk. Over this place a piece of platinum foil. Holding the die in position with the left hand, grasp the swaging instrument in the right, as shown in Fig. 44, forcing the soft point into the center of the deepest portion of the cavity; then press hard upon the swager, at



the same time giving it a slightly triturating motion (Fig. 45). This will produce a general outline of the cavity in the matrix metal. Without fracture or tearing, remove from the die and separate the metal from the skin or silk and replace it in the die and repeat the swaging process.

The margin should be carefully burnished with the glass burnishers described in the first chapter of this series. Any unnecessary surplus



Fig. 42.

overhanging the margin should be cut away with a sharp knife. The matrix is removed and annealed as follows: Place the matrix upon a piece of thin, say 30-gauge metal, about 4 cm. square and hold over a Bunsen flame until heated to a dark cherry red. Allow it to cool, then replace the matrix in the die and reswage it and reburnish. To remove, shape some beeswax into a small cone, force the point in the bottom or deepest portion of the matrix and press down until all the margins are covered, and slightly overlapped. Without releasing the finger grip, give a sharp, quick pull and the matrix will come away without the slightest distortion. This is then invested and treated as described in the first chapter.

new Cement Matrix.

Dr. Nies, of Brooklyn, has promised in the very near future a cement similar to the Price's artificial stone, which will stand a heat sufficient to fuse porcelain without changing form. Tests made by

myself with the material lead me to believe that Dr. Nies will accomplish all that he has expected, in the event of which, porcelain inlay work will be revolutionized. The method is very simple and is as follows:

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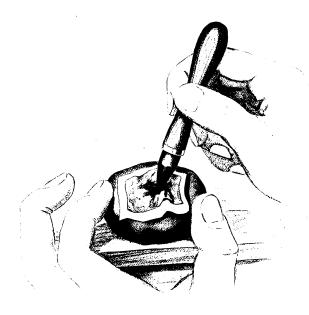


Fig. 44.

Che Nies Method for Porcelain Inlavs.

First, take the impression as in the old method. Second, a thin layer of the cement is painted over the surface of the impression with a small artist's brush. A sufficient quantity of the cement is added to form a mold or die and allowed to set

or harden. The impression and die are then separated by heating over a Bunsen or alcohol flame. The die is then used as a matrix and the porcelain baked in it. The die or cement matrix is then removed from the inlay with a solution of hydrochloric acid and the result is an inlay which fits the cavity very exactly and the inventor claims to practically eliminate the cement line when set in the tooth.

Cechnic for Making Amalgam Cavity Models. As Dr. Nies's material is not yet available I think that for the present we must depend upon the amalgam dies, which in my experience thus far are more satisfactory than anything else. The impression of a cavity having been taken with any of the

trays already described, I cut off the handle of the tray, retaining only





Fig. 45.

that portion to which the modeling compound is attached. I then mix plaster of Paris to a thick creamy consistency, place a little pile of it on a small cardboard, and then gently force the compound impression into the plaster, thus forming a cup-shaped depression in the plaster and surrounding the impression with plaster in such a way as to furnish a convenient means of packing amalgam into it, thus forming the amalgam die, or cavity model. (Fig. 46.)

For making these dies I am partial to the silver-tin amalgam and to get the best results from this I find that it must be mixed extremely soft, in fact, almost wet, so to speak. The most resistant, and most accurate die is obtained by grinding the alloy in a mortar with a surplus of mercury, until the entire mass is incorporated and then placing it in a piece of rubber dam, enclosed in a ball-like mass as shown in Fig. 47, and rubbing briskly into the palm of the hand. This mixture will prove very plastic and easy of adaptation to the finest margins. A small por-



tion should be inserted into the impression first and carefully burnished without pressure to all the margins until the surface of the impression is entirely covered. The excess of mercury should then be squeezed from the balance of the alloy and the mold filled up a little above the surface. By light pounding or burnishing it will be found that an excess of mercury can be forced to the surface which can be removed by folding a piece of rubber dam into a thick pad which is placed over the amalgam, and holding the rubber and die between the thumb and the first and second fingers the excess is squeezed out.

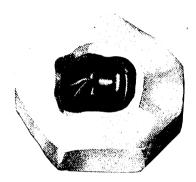


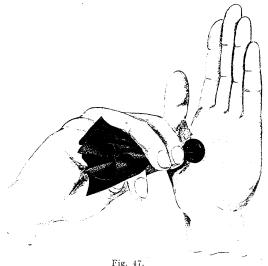
Fig. 46.

These dies should be allowed to stand over night and the plaster matrix containing the impression should be removed by cracking it with a spatula or chisel and the impression and die separated by immersion into hot water. This amalgam die is then imbedded into a Brewster cup filled with dental lac by first heating the dental lac to a consistency permitting of a perfect embedment and support. This is chilled and then the procedure before described with the goldbeater's skin, or china silk is pursued. A piece of spunk is placed in the center and the whole put into the Brewster press and screwed down to place, after which the spunk is removed, the margins carefully burnished with a glass burnisher, the surplus gold or platinum removed as in the previous case and the beeswax cone inserted and the same removed from the die as previously described. These matrices with the wax intact are then invested in Pelton's Investment No. 2 in a platinum pan as described in the first chapter of series. After the investment has set the wax is



removed by either holding over a Bunsen or alcohol flame, or with scalding hot water. This is then thoroughly dried and the porcelain is added to the matrix as before described.

The procedure with the indirect method after securing a matrix is identical with that of the direct, but it must be understood that in all the technique preceding that of making the matrix itself, careful consideration must be given to each detail, because otherwise there is liable to be a failure.



Copper Amalgam.

In the use of copper amalgam Dr. Chaves has recommended the spatulation of the alloy upon a paper pad with a heavy cement spatula in preference to triturating in the rubber dam as described for the

silver-tin alloy. This seems to me quite an advantage over the other method when using copper amalgam, but in the silver-tin alloy I have not been as successful by applying this method as I have in that of the use of the rubber dam.

Spence Metal.

Personally, I have not been able to secure satisfactory results with Spence metal. It lacks The fine outlines of margins are lost and while the inlay can be made to fit without rocking

or warping the cement line is so much magnified that I feel it is hardly worthy of consideration. As to the grade of silver-tin alloy for these cases I believe it to be a matter of personal equation. Personally, I secure results that are satisfactory with any of the alloys on the market



selling from \$1 to \$2.50 per oz. Some of the cheaper, perhaps, might change after long standing more than some of the more expensive, but inasmuch as these matrices are to be made within a reasonable length of time, say within two or three days, I am convinced that any of those described are available. It is hardly necessary for me to go into detail again as to the method of manipulation in adding porcelain to the matrix, but I believe if the first instructions are carefully followed out that it is possible to obtain as accurately a fitting porcelain inlay by the indirect method as by the direct, and as before stated, there are so many advantages in the indirect over the direct that I can hardly conceive of anyone adopting the former.

H Clinical Report of the Successful Creatment of Four Cases of Cetanus.

By Dr. Byron E. Fortiner, Camden, N. J.

In an article in ITEMS OF INTEREST for April, 1913, the treatment and formulæ of the medicine for the cure of tetanus was published, and in response to a request, I submit this report of cases that have been cured. But first I wish to call attention to an error in printing in the foregoing article. In speaking of Calcarea sulphuricum 3 x used in the cure of abscesses, the drachm sign was used by mistake. This should not be ten drachms, it should be 3 x (Calcarea sulphuricum 3 x), meaning the third decimal trituration. It should be purchased at a homeopathic pharmacy. Half grain tablets-two every four hours, may be laid on the gum until dissolved and then swallowed, in periodontitis and mild forms of abscesses. But in severe abscesses with great swelling use the powder, 20 grains. Cut square pieces of cambric two and a half inches square, put 20 grains of Pulv. calcarea sulph. 3 x on this, bring edges together and tie into little bag. Cut surplus cambric and thread away. Give patient twelve of these; direct to place one on the gum over the sore teeth; let this remain for an hour, swallow the saliva that forms in the mouth while the bag is in place. Apply a new bag every two to three hours. My article in Items of Interest for November, 1907, gives full directions for treating abscesses with these remedies.

I believe every dentist should have his own medicine, bottles, corks, labels, etc. There are so many medicines that a dentist needs to successfully treat the teeth and many lesions arising from diseased conditions of teeth that I believe it to be a mistake for a dentist to write prescrip-



tions for his patients to have filled, for in many instances the patient cannot procure the required remedy, and it is very easy for the practitioner to give the patient the medicine with full directions as to its use. He then knows that his patient has the correct remedy.

I would like to state here that if I extract a tooth and find the socket sore and painful, I immediately pack it with aseptic gauze wet with the tetanus specific now under consideration, as this relieves pain and will counteract any pus-forming tendency or septic condition if it has become infected, as it is highly antiseptic and a destroyer of toxins. If the tooth is abscessed and extremely painful, the following while no better as an antiseptic, has stronger anæsthetic properties and will almost always put an end to the pain without resorting to narcotics.

\mathbf{R}	Orthoformgrs. xx.
	Campho-phenique
	Oil of sweet almonds

Mix. Sig.: Saturate one narrow strip of aseptic gauze with this and after moistening the socket with pure iodine and aromatic sulphuric acid, pack it gently in the socket and leave until the next day. It can be removed before this if necessary but it usually relieves all pain.

I wish to describe a few cases of tetanus, giving the treatment.

Cases from Practice. Case I. First case, a young man nineteen years of age, had been suffering for two months with interrupted dentition of lower left third molar tooth. The face at angle of jaw had been quite swollen at times, and there had been considerable pain. While

playing tennis one afternoon he ran into the side of the house, throwing up his left hand, and ran the rusty shutter stay halfway through the palm of the left hand. The pain was of a sickening nature and was severe. In just one hour after the accident the pain suddenly left the hand and struck as with the blow of a hammer, the angle of the jaw and muscles of the back of the neck. This continued for about six hours when the jaws began to grow stiff and pain became very intense. Soaking feet in hot mustard water, hot fomentations to the face, the administration of bromides gave very little relief, so that part of the first night was spent walking the floor. In the morning every symptom being so much worse, jaws locked and a spasmodic condition developing, it was decided to try my tetanus specific. This was administered in teaspoonful doses. small piece of gauze was wet with it and inserted into the wound in the hand, another moistened piece laid over it and bound up. In three hours the pain was greatly diminished, also pain and stiffness of muscles of neck. At eight o'clock that evening the jaws could be moved about a



quarter of an inch. The patient got about six hours' sleep that night. In the morning the jaws could be moved enough to see the gum over the wisdom tooth. It appeared very swollen and yellow, and when a lance was inserted into it over a teaspoonful of pus was discharged. The medicine was continued every hour as before, during the day, seven hours sleep was obtained the next night, and in the morning it was found that the jaws were absolutely limber and body absolutely free from pain. The patient said he was hungry and asked for his breakfast, which was given. The gauze was removed from the wound and external dressings only continued for two days. A teaspoonful of the medicine was given every three hours that day and three doses the next day completed the cure. This patient is still alive. This was eleven years ago.

The next case, a woman forty-three years of age, ran a rusty nail through the thin sole of her Case II. shoe into the ball of her foot. She paid very little attention to it and it healed over in a day or two. On the eighth day after the injury she began to feel pains in her limbs, which soon extended over the entire body to muscles of the neck. This person did not believe in doctors, did not think it right to take any medicine. Several of her friends were kept busy soaking her feet and applying hot fomentations to her body. I was told of the case and asked to go to see her. She was on the bed, her body stiff and was jerking with spasms. "I cannot stand this pain." I told her that I made a medicine that would cure her if she would take it, but thought that if she continued as she was with the present treatment she would die. She consented to take it. I gave her one teaspoonful every hour, and in a few minutes after the first dose, she said, "I can feel that medicine tingling all through me and my pain feels better." The remedy was applied to the wound, but it was not reopened. This dressing was to be renewed three times a day. I saw her the next morning, the stiffness and spasms were gone, pain was absolutely gone. She said, "I feel weak." (She had been awake taking her medicine all night.) I told her that that was all right and I wanted her to feel that way, and it was on account of the thorough relaxation of her entire muscular system, but that there was no danger from that. There had been no nausea. I gave her two teaspoonfuls of brandy in a cup of warm milk and ordered the milk to be given every hour and the brandy every two hours until she felt stronger, with constantly diminishing doses of the tetanus specific. The rapidity of the recovery was remarkable. Two days after this she got up and did the family wash, and the next day the ironing. She is alive to-day and this was ten years ago.

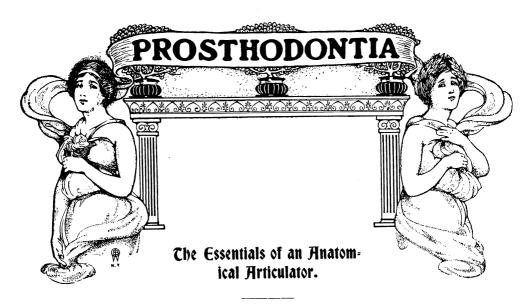


Next case, a woman aged twenty-two years, alveolar abscess with three putrescent lower molar roots, right side; jaws had been locked for six days; not a morsel of food had passed her lips; she had walked the floor and cried with agony. I gave her two teaspoonfuls every two hours. She held it in her mouth, but could only swallow a few drops at a time as muscles of deglutition were stiff and paralyzed. A few hours only were enough to relieve her pain and limber the jaws. The abscess discharged that night in her mouth. She did not complain of feeling weak and there was no nausea. She drank a cup of hot milk and asked for some orange juice, and was soon able to get up and make an egg custard for herself. She is alive to-day. The offending roots were afterward extracted

Another case, a woman forty-two years of age. Case TU. had lower left wisdom tooth extracted to relieve a toothache. Cocaine anæsthesia was administered and peroxide of hydrogen was used subsequently as a wash for the socket. In two weeks no relief. Went to same dentist, who took out second molar next to it using same anæsthetic. When she was brought to me by her husband her jaws had been locked for seven weeks. had been treated by seven physicians, four dentists and had been to two hospitals, without relief. Her face was swollen, pain excruciating, she had severe inflammation of the inferior dental nerve and necrosis of the mandible. My tetanus specific held in the mouth, and a teaspoonful internally every hour, gave her relief from the pain and limbered her jaws so that they could be operated upon. I have never seen it fail to relieve trismus and pain. It works like magic, it is safe, it is of low cost, it strengthens the heart, it produces muscular relaxation, it destroys the virus of tetanus bacilli and all toxalbumens. It has not been discovered whether it destroys the germ itself; it does enough without this. I have been trying to have it used in hydrophobia, as I believe it will be fully as effective in that disease as in tetanus.

Do not laugh at me, gentlemen, nor cry pooh! pooh! If you had seen it work as I have you would not scoff. If someone near and dear to you had one of these terrible diseases you would want the very best treatment you could get to save him, and if you had seen this operate you would use it. My father and grandfather were physicians before me, and part of this knowledge was imparted to me by them. I believe I know what I am writing about, and have given the profession the whole treatment with exact formulæ. It has been used in other cases where it has prevented tetanus or sepsis, and I think has been quite sufficiently tested, having cured every case in which it has been tried. I have decided to keep it to myself no longer.

49¹ July



By W. C. Dalbey, A.M., D.D.S., DuQuoin, Ill.

Now that the several movements of the human mandible are well known, it remains for the dentist, if he is to supply the edentulous patient with a practical demonstration of his skill, to first construct or obtain an instrument in the way of an articulator that will mimic in every essential the movements of the human jaw.

The first question then would be, What are the essential movements entering into the construction of artificial dentures? They are those masticatory movements of the human jaw, comprising in straight opening a forward and downward movement—the right lateral movement, the left lateral movement. In the right lateral movement the right condyle moves only slightly—it becomes really the center of the arch—but the left condyle moves three or four times farther, its path being forward, downward and inward toward the median line. In the left lateral movement of the mandible the left condyle moves slightly and the right condyle has by far the greater movement. During both left and right lateral movements there is a shifting of the entire mandible.

It was Dr. Bennett who first showed that the condyle has a movement that is distinctly inward toward the median line, combining with it



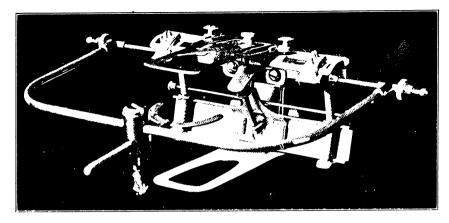


Fig. 1.

a forward and downward path. Really, each condyle has two lateral movements. It moves laterally outward when the jaw is thrown toward its own side, and laterally inward when thrown to the opposite side. The

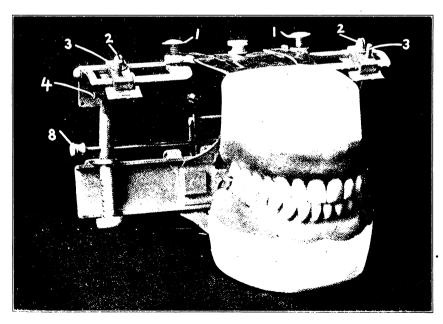


Fig. 2.



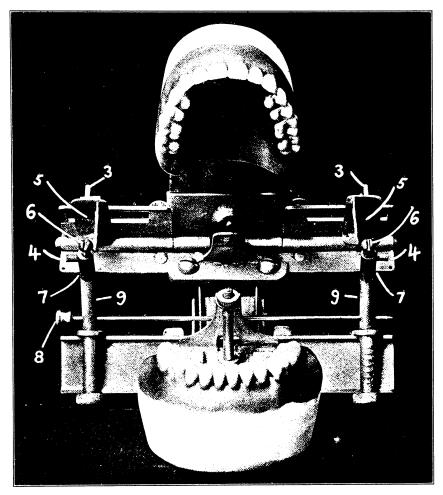


Fig. 3.

average inward lateral movement is about 17° as the condyle moves forward. This is combined with an average downward inclination of about 35°, commonly known as the inclined plane of the condyle.

These several movements have not been recognized in the construction of anatomical articulators as they should have been. In fact, in many articulators these movements have not been recognized at all. The writer contends that every one of these movements should be obtained from an articulator. Many efforts to articulate teeth have failed because the articulator did not reproduce specially these lateral movements. Every straight-line articulator should be relegated to the junk pile; also many



other so-called anatomical articulators should speedily follow, especially those that merely produce average results.

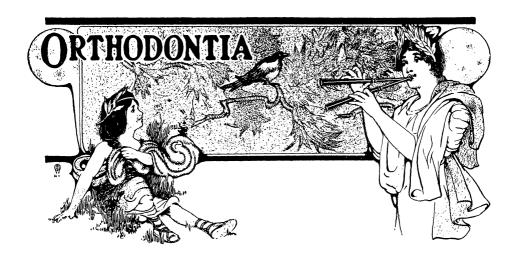
Most dentists now know that the condyle is not the center of rotation, or hinge center. Any articulator made on such a plan is an absolute failure. The center of rotation is half-way between the contact of the condyle in the human and the occlusal plane, and five-eighths of an inch back of a perpendicular line through the center of the condyle.

Not only should an articulator be made to mimic the masticatory movements of the human jaw, but the articulator should be adjustable to exact size to reproduce the movements of the case in hand. The mandible of a child may produce the same general movements as the adult, but to make dentures upon an articulator the size of a child's jaw would give the adult artificial dentures that to him would be of little value. The distances between points of movement in the human mandible should be exactly reproduced in the articulator. To illustrate, if the point of rotation in a certain patient you were making dentures for produced certain lateral movements, we will say at five inches from point of rotation to central incisors, this same distance should be had in the articulator. And if the distance in this same case between the condyles was four and one-half inches, to reproduce proper movements entering into the making of these plates, the articulator should be adjusted to four and one-half inches between the artificial condyles. It would be folly to make dentures for this patient with points of rotation at three and one-half or four inches from incisors, and distance between artificial condules at, say, three inches. One cannot make a five-inch circle with dividers set for three inches.

The anatomical articulator here illustrated the writer claims to be scientifically correct in every essential. Fig. 1 is a general view of the articulator with the Snow bow attached. Fig. 2 shows the articulator with teeth correctly set upon it; I—I, screws for setting the adjustable inclined plane of the artificial condyles; 2—2, screws for setting artificial fossa laterally; 3—3, pins to facilitate measuring, standing just over the artificial condyles.

Fig. 3 shows articulator opened. 4—4, pins for holding Snow bow; 5—5, artificial fossa of the correct anatomical shape; 6—6, adjustable artificial condyles; 7—7 shows position of rotation or hinge points, five-eighths of an inch back of a vertical line through the center of condyles; 8—8, occlusal plane; 9—9, adjustable artificial rami.

This articulator is adjustable in every way to the actual size of all points entering into the making of artificial dentures for each case in hand. And when dentures are made after this plan the writer feels he has given his patient service after the highest order.



Orthodontia for the General Practitioner.

By Abram Hoffman, D.D.S., Buffalo, N. Y.

Read before the Second District Dental Society, State of New York, at Brooklyn, N. Y., January 13, 1913.

A careful clinical observation covering about six years and including many thousands of mouths, prompts the writer to make the statement that the ideally perfect, normal occlusion is rarely, if ever, seen in the human denture; and, further, that probably not to exceed two per cent. of dentures approximate the ideal nearly enough so as to render them fit to be taken as a standard of normal occlusion.

It has repeatedly been stated that fully ninety-five per cent. of human dentures present some form of malocclusion, and it has been variously remarked that anywhere from sixty to the full ninety-five per cent. of cases positively demand orthodontic treatment.

Gentlemen, are we rendering the *best* service to six-tenths of the children in our individual practices by trying to give them the masticatory apparatus that Nature intended them to have, or are we allowing these conditions to become progressively worse because of an inability to recognize them or because of inability to treat them, or because of an indifference for the future?

It matters but little as to what the answer may be—it remains a fact that the average dentist is to-day overlooking conditions that to-morrow will result in the most serious malocclusions.



The foregoing thoughts form the subject matter of this paper, and as it is not possible to undertake an exhaustive treatment of any phase mentioned at this time we will try to cover briefly a few essentials.

There are a great many of our professional brethren who are undertaking orthodontia along with the other lines of practice. Some of these men are reasonably well informed, but the vast majority are working

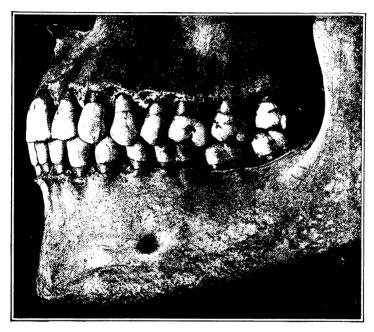


Fig. 1. Normal Occlusion. Buccal view. (Turner.)

entirely without knowledge of the fundamental principles. It is absolutely imperative that we be able to correctly diagnose malocclusion before we can hope to successfully treat it, for upon the diagnosis and classification of the case depends the mode and method of treatment.

But before we can diagnose we must go back still another step. We must know normal occlusion as we used to know the multiplication tables—forward, backward and sideways. We must know the proper relationship of every tooth, every cusp, every sulcus, and every inclined plane of the teeth of the mandible to those of the maxillæ, and until we have that picture ever present in our minds we are groping in the dark; therefore let us first comprehend the word occlusion. It is from Latin, occludo, and means "to shut or to close." Occlusion of the teeth then implies a



closing of the mouth, bringing the morsal surfaces of the teeth into contact.

As we are to take perfection for the standard, let us define occlusion as being the normal or ideal relationship of the inclined planes of the teeth when the jaws are closed, and this implies a normal development of the teeth and the associated and contiguous structures as well. Normal

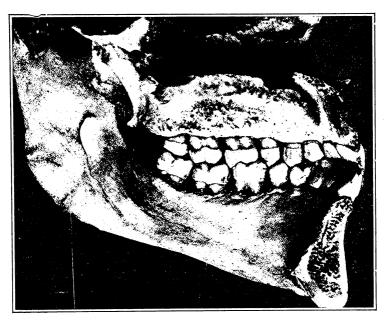


Fig. 2. Lingual Occlusion. Buccal view. (Turner.)

occlusion is the basis, the foundation of the science of orthodontia. A few slides will aid in "fixing" this mental picture.

Characteristics of Normal Occlusion.

Viewing a normal denture laterally (Fig. 1) from the buccal side the following characteristics are evident: That every tooth, as to size, form and position, is in harmony with the whole arrangement; that the upper arch describes a larger arc of a circle

than the lower because of the fact that the upper incisors are slightly wider than the lower; that, accordingly, the lower teeth from the centrals back are slightly in advance, or mesial to their mates in the upper arch; that the distal inclines of the lower teeth occlude with the corresponding mesial inclines of the uppers; the curve of the Spee is evident; every



tooth has two antagonists except the lower central incisor and the upper third molar; the upper teeth are in buccal and labial occlusion.

Viewing the denture (Fig. 2) from the lingual side we note that the same general characteristics exist (modified in accord with the lingual aspect). And again (Fig. 3), a transverse section just anterior to the first molars shows beautifully the interdigitation of the cusps, the

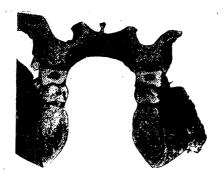


Fig. 3. Normal occlusion of Molars, transverse view. (Cryer.

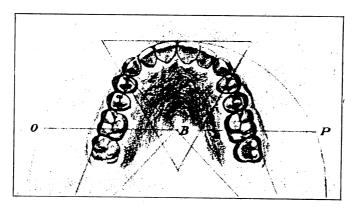


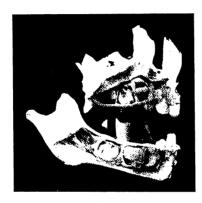
Fig. 4. Normal occlusion. Occlusal view. (Hawley.)

lateral curve and lingual inclination of the lower, the buccal overhang of the upper and the lingual occlusion of the lower teeth.

Another point that must be noted in study of normal occlusion is that the dental arch when viewed occlusally (Fig. 4) is in form, more or less, a parabolic curve. The extent of this curvature will vary in different individuals, according to type, temperament or race. The arch may be broad in one case or elongated and narrowed in another, but if



the teeth are to be in normal occlusion they must be in harmony with this curve, the line of greatest contact. There are seven primary malpositions which teeth may occupy when at variance with this line of occlusion, viz.: mesial, distal, lingual, labial (or buccal), infra, supra, and rotated or torso-occlusion. These positions may be complicated because of various combinations in the individual teeth, and the whole made more complex because of malrelations of the arches resulting in conditions that make the statements as to percentage in the opening paragraphs of this paper more apparent.



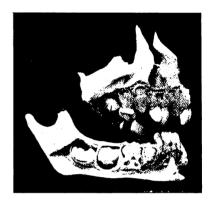


Fig. 5.
Fig. 5. Developing first permanent molar (9 months).
Fig. 6. Developing first permanent molar (1 year).

It has been quite conclusively shown that the upper first molar, under all ordinary conditions, erupts with a constancy of position that is sufficient to warrant its being taken as the landmark from which the malpositions of the other teeth may be calculated. This remarkable tooth is usually accompanied by the following conditions, which enhance its value as the "Key to Occlusion." It is the first of the permanent tooth germs to be formed; it is the first permanent tooth to develop and erupt. It is guided to and assumes its position directly back of the deciduous denture; its position is reasonably assured before there is much mutilation of this denture; it seldom varies from a normal bucco-lingual position; it is the typical (upper molar) tooth in form and it is the largest of the human teeth (see Figs. 5, 6, 7 and 8). Quoting from Angle: "As the first molars are planted in the alveolar process long years before the permanent teeth, anterior and posterior, shall take their places in the line of occlusion, they have become very firm of attachment, so that by their strength they can and do act as dictators of these teeth, and indirectly of all the other teeth as they take their respective positions in the line of



occlusion. They also act as the wise rulers, determining by their length of bite, and in this way in no small degree decide the length of the face and and the art relations, which in importance is best illustrated—and in a striking manner—by what the face misses in after years when these teeth are sacrificed, allowing the settling together of the jaws and shortening of the face, with consequent inharmony of facial lines, always so noticeable, and their wise control of the normal mesio-distal relations of the jaws

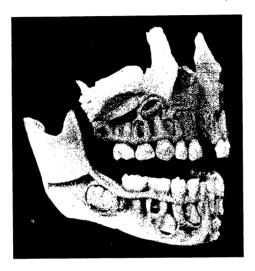


Fig. 7. Developing first permanent molar (31/2 years).

by the locking of their well-defined cusps is a factor in the plan of growth and development of the face and jaws of mighty importance."

The function of the normal denture is primarily that of mastication; it aids in speech and enunciation and contributes in no small degree in establishing beauty or facial balance.

There are a number of factors that maintain these ideal conditions in the normal denture. Briefly they are:

Factors Which Maintain Normal Occlusion. 1st. The normal interlocking of the cusps and inclined planes which guides the erupting tooth and holds it in a given position. If the influence of these planes is perverted it is likely to result in a malocclusion of from a single tooth to the entire thirty-

two teeth (Fig. 9). The cusps of the deciduous teeth wear away quite rapidly and their occlusal surfaces become more or less of a

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plane surface—the restraining influence of the incline is lost, and this emphasizes the fact that we must observe very closely the normal interlocking of the permanent teeth as they erupt, and it also teaches us that if it becomes necessary to restore the mesio-distal breadth of the deciduous teeth by filling, that such filling should be fully contoured to the original outline of the tooth, otherwise there will be a settling together

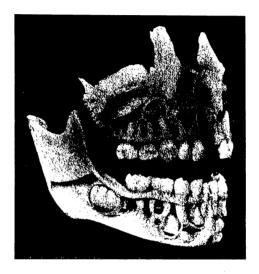


Fig. 8. Developing first permanent molar (Age 31/2 years).

of the teeth with a consequent lack of sectional development of the arch, with future trouble at once apparent. The same argument applies to the premature extraction of these teeth—the spaces should be maintained by a suitable fixture, but it is vastly better to retain the teeth.

2d. The percussive forces in mastication and the mutual support of one arch upon the other are factors that must be considered for maintaining the integrity of the arch. It is this that renders it impracticable to do that which is so often recommended, viz.: "To regulate the upper teeth only." In such a procedure the mutual support of one arch to the other is probably not established and the success of the operation is much in doubt.

The teeth of the lower arch erupt earlier than those of the upper, and, therefore, the lower arch is accepted as the mold over which the upper is formed, and the percussive forces of the lower in mastication tend to guide the erupting teeth to their positions.



3d. The equality of muscle pressure is a very important factor in maintaining the harmony of the arches. Normally the tongue virtually fills that portion of the oral cavity which is behind or within the dental arches and it acts as a support, giving breadth to the palate and arches. If the action of this muscle is perverted, and the restraining influence of the interlocking cusps is absent, the strength of the lips and cheeks is almost certain to result in a malformation of the arches. This condition

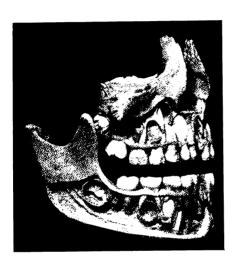




Fig. 9.

Fig. 10.

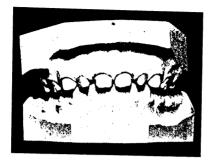
Fig. 9. Cusps of deciduous molars wear away rapidly.

Fig. 10. First permanent molar is guided to mesio-distal position behind deciduous molars. (Angle.)

is perhaps best illustrated in the case of the mouth breather; the nasal cavity is more or less occluded from adenoid growths, and instinctively the mandible and the tongue are lowered in the effort of Nature to get air into the lungs; the equality of muscle pressure is lost, the tension of the cheeks compresses the soft pliable bone of the maxillæ and alveoli, and the result is the elongated arch with a high, narrow palate, usually accompanied by protruding upper incisiors.

If we observe carefully the normal developing denture of a child at about five years of age (Fig. 10), the principal points to be noted are the mesio-distal relations of the teeth of the mandible to those of





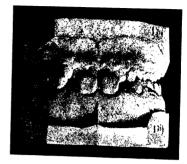


Fig. 11-

Fig. 12.

Fig. 11. Spacing in deciduous denture allowing for increased width of permanent teeth. Fig. 12. Normally developing denture of a child at eight years of age. (Angle.)

the maxillæ, and the spaces existing between the anterior teeth. As in the case of the ideal permanent denture, the deciduous lower molar teeth are slightly in advance of the uppers; the integrity of the arches is unbroken, the proper mesio-distal width of the molars exists; there is no leaning together because of cavities, faultily contoured fillings or spaces from extraction; the sixth-year molar is forcing itself upward between the second deciduous molar and the ramus, assuming its position and lengthening the mandible at the same time. If the normal spaces (Fig. 11), which are considered to be sufficient to compensate for the increased width of the permanent teeth are partially or entirely absent, let your suspicion be an inequality of muscular pressure, and the necessary operative measures should be undertaken at once in order to prevent a lack of sectional development with the subsequent crowding of the erupting teeth in this region.

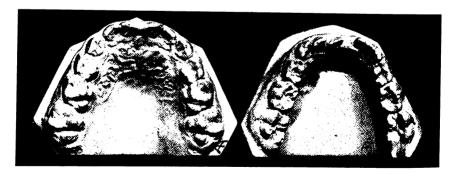


Fig. 13. "Keystone" of lower arch misplaced. Note breaking down of upper arch with lack of sectional development and future crowding apparent.





Fig. 14. Lack of facial harmony due to malocclusion of deciduous teeth. Age 2 years and 8 months.

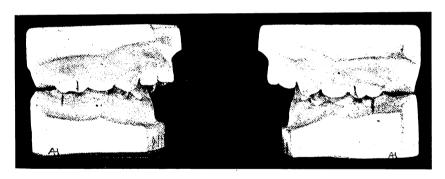


Fig. 15. Malocclusion of the deciduous teeth. Age 2 years and 8 months.

If we study the normally developing child denture again (Fig. 12) a couple of years later, at the time when the four lower incisors have erupted, and if we find that these incisors are preserving the proper anterior breadth of this arch between the cuspids and the percusive forces of the lower cuspids are in turn preserving the upper arch against the muscular forces of the lips and cheeks we may rest, with reasonable assurance, for the time being. But if the lower incisors (Fig. 13) are crowded and irregular with the "keystone" misplaced, Beware!



Malocclusions of Temporary Ceeth.

Some of the writers upon the subject of orthodontia are very reluctant in admitting the existence of malocclusion in the deciduous denture, adhering to the theory that irregularities come only with the permanent teeth. This is entirely erroneous and

should be given about as much credence as the ridiculous statement that we so often hear, viz.: that "straightening of the teeth should not be undertaken until all of the permanent set are in place." The narrowed



Fig. 16. Lack of sectional development and impaction as a result of the premature loss of deciduous teeth. Age 11 years.

spaces between the anterior teeth and the malrelation of the arches are both often seen in the deciduous dentures (Figs. 14-15). There is no mistaking the distal position of the mandible and the facial inharmony in Fig. 14. The patient's age is two years and eight months.

Thus far our thoughts have been aimed chiefly at getting the *normal* fixed in mind, and it is the writer's honest belief that if the rank and file of our profession had a keener conception of normal occlusion they would serve humanity immeasurably better in every branch of practice.

Causes of Malocclusion.

The question is asked: What are the factors that bring about malocclusion, this almost universal affliction to the human race?

The causes of malocclusion are numerous, varied and sometimes obscure. At present we can touch but briefly upon those most frequently encountered. The greatest evil probably results from the breaking of continuity of the deciduous arch, either because of proximal caries, improperly contoured fillings, premature loss or extraction, all resulting in a lack of sectional development (Fig. 16). This also applies with equal force to the permanent teeth; spaces



are created, the wedging influence of the erupting tooth is lost, with the result that the teeth anterior to the space are not carried forward and they may drift backward, while those posterior are either carried or tipped forward leaving the gum tissue more or less exposed to be bruised in mastication with the loss of the bony support of the tooth. Each tooth plays such an important part in the organism that its loss should be considered a calamity. The common practice of extracting the



Fig. 17. Lack of facial harmony. Caused by the extraction of the permanent cuspids so as to relieve a crowded condition. (Angle.)

laterals, cuspids or bicuspids to relieve a crowded condition of the arch records itself indelibly. The bony framework underneath the muscular structure of the lips settles together (Fig. 17) and in a short time there is a decided lack of development in this portion of the face; deep nasolabial grooves develop—the harmony is gone and the face of the youth has many of the characteristics of the aged edentulous person. So much has been said in recent years about the evil of extracting permanent teeth for the correction of malocclusion that further reference should be superfluous.

Occlusal fillings (Fig. 18) which are constructed with no regard for marginal ridges, cusps, sulci, etc., are often factors in bringing about malocclusions and the utter neglect on the part of the general practitioner

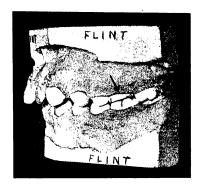
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to restore the anatomic features of occlusal surfaces, whether crowns or fillings are employed, has frequently prevented the orthodontist from holding an established occlusion.

The prolonged retention of the deciduous teeth or roots (Fig. 19) causes mal-alignment principally, as does the presence of supernumerary teeth (Fig. 20).

Habits—some of them most obscure little traits will, if persisted in, develop malocclusions and unless these little traits are conquered it is almost impossible to correct the irregularities. The most common



F.g. 18. Faultily contoured occlusal restorations are apt to develop malocclusions. (Angle.)

habits are thumb-sucking (Fig. 21), resting the tongue between the anterior teeth (Fig. 22), lip biting (Fig. 23) and perhaps the use of the baby's "comforter." The abnormal labial frænum (Fig. 24), disuse, prenatal influences, impaction, scar tissue after an abscess or careless extraction are all contributing factors.

The conditions resulting from obstructions in the air passages are varied and the complications here are many, effecting not only the dental arrangement but the voice, the facial harmony, the internal anatomical formation of the face, the mentality and most important of all, the general health of the patient. A common type of case is seen in Fig. 25. The dentist who can recognize these pathological conditions early in life—often occurring before the third or fourth year—and who refers the case to a competent rhinologist, becomes one of humanity's most worthy servants.

Irregularities of the teeth resulting from these obstructions may be found in each of the three classes of the Angle Classification of Malocclusion. In Class I, when the first molors, arches and jaws

are in normal mesio-distal relationship, we may find a crowded condition



of the anterior teeth, or there may be a lack of contact or occlusion of these teeth. In Class II we find that the lower first molars, arches and jaws are in distal occlusion, due to the dropping of the mandible in mouth breathing, with the distal interlocking of the cusps. This may occur upon one or both sides of the arch. In Class III we find that the

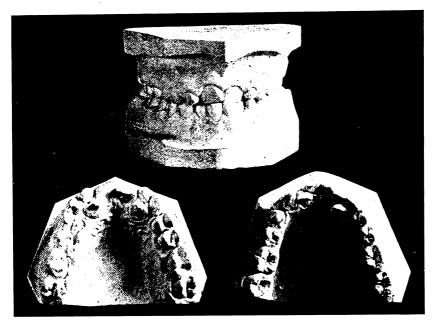


Fig. 19. Deciduous teeth or roots that are retained too long usually guide the erupting permanent tooth to a malposition.

lower first molars, arches and jaws are in mesial occlusion with the corresponding upper tissues, due to a mesial interlocking of the cusps.

The causative factors form chapters in themselves; suffice it to say that as a rule malocclusions have very simple beginnings, and as the little patients come under the observation of the dentist frequently he should advise treatment as soon as the abnormal conditions are detected, for at that tender age, often a very slight force directed in a proper manner will correct conditions that later in life may require months of treatment.

Sphere of the General Practitioner.

The question is often asked, "How far should the dentist enter upon the practice of orthodontia?" and a conservative answer would be that he may undertake *preventative measures*; that he should



never attempt expansion of the arches in the full accepted meaning of the phrase; nor the readjustment of the occlusion except in its simplest forms; nor the shifting of the mandible in cases of protrusion or retrusion. If the dentist will care for all of the "preventative cases" that come under his observation, he will have all of the orthodontia he has time for.

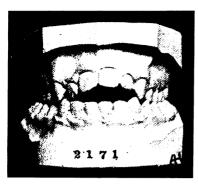


Fig. 20. The supernumerary tooth is apt to cause malalignment. At 1-a is a beautifully formed lateral, probably a fifth incisor.

A paper upon Orthodontia for the General Practitioner seems to be incomplete without touching upon the methods of treatment that he may safely follow, but the appliances, the technique and the treatment, wonderfully interesting as they are (borne out by the fact that the average man starts to make or place the appliance before he has any idea of the cause or classification of the malocclusion), must be left for another time.

Orthodontia requires much more than a knowledge of the mere mechanics of moving and retaining the teeth. To the man who has a genuine liking for the specialty and who desires to be of real service, we would recommend reading and rereading Angle's work on *Malocclusion*. Much that has been said herein is in direct accord with this authority. The *American Text Book of Operative Dentistry* contains





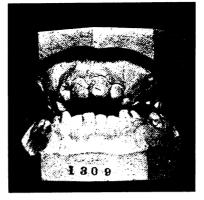


Fig. 21.

Fig. 22.

Fig. 21. Evil results of thumb sucking. Fig. 22. Result of resting the tongue between the anterior teeth.

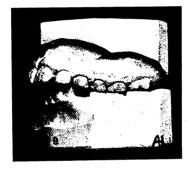
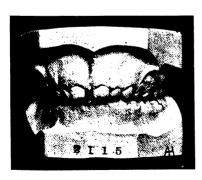


Fig. 23.

Fig. 23. Malocclusion caused by biting the lower lip and allowing it to rest underneath the upper incisors.



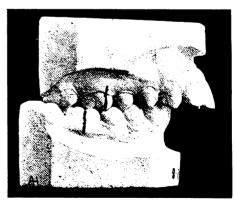


Fig. 24.

Fig. 25.

Fig. 24. Space between the upper centrals caused by abnormal labial frænum. Fig. 25. Type of malocclusion, resulting from mouth breathing.



an excellent chapter on orthodontia by Dr. Angle, as well as splendid chapters on some of the correlated subjects by such men as Noyes, Thompson and Goddard. Black's *Dental Anatomy* should be studied by the student of orthodontia, also Kyle, on the nose and throat. An excellent collateral work, *Dental Anatomy and Physiology*, by Mr. A. Hopewell-Smith, has just been received from the press. The proceedings of the *Alumni Society of the Angle School* in their journal, and those of the *American Society of Orthodontists* in the ITEMS OF INTEREST, should be carefully perused for the advanced thoughts in this specialty.

In conclusion, let us remember that the most important duty of the dentist in this line of endeavor is the prevention of malocclusion. He should know occlusion and be able to detect irregularities in the developing mouths early; that the time to correct any irregularity is as soon as the tendency manifests itself, and that when the first permanent molars have erupted sufficiently so that there is an interlocking of the cusps of the upper and lower teeth, if the mesio-buccal cusp of the upper does not occlude in the mesio-buccal groove of the lower it is time to consult the rhinologist. Remember that treatment is secondary to diagnosis and classification; that the appliance should be simple and effective with never enough pressure to cause discomfort; that prophylaxis must be a watchword; that extraction is no longer countenanced, and finally that normal occlusion is no longer the basis of orthodontia alone, but that it is positively the basis of all dentistry.





An Appeal for Scientific Effort in Dentistry.

By Dr. Marcus Weintrob, Atlantic City, N. J. Read before the Atlantic County Dental Society.

We who are meeting here to-night have cast our lots for better or for worse and have become professional men with our own peculiar dental problems. Whether it was our destiny or the inscrutable will of an all-wise Providence that brought us into paths leading into our professional careers, we know not. One thing we do know: that we have been educated and trained to do this particular work some way, somehow. somcwhere. The poignant question forces itself sconer or later upon us all—"Are we doing for, and giving to, the world the best that is in us?" Strange question in these prosaic times! But let us proceed and see whither it leads.

Are we making an effort to rise above the mere mechanism of our profession, or have we reached the acme of our aims when we operate with our mechanical apparatuses upon our patients? Does dentistry consist of "plugging cavities," as one of our enterprising newspapers recently termed it, and is the making of crowns, or bridges, or artificial dentures glory enough without seeking further? If dollars are the dominating factors in our ambitions—"Yes!" Then progress in the mechanical arts, and nothing more, will be our ultimate fate.

We have formed a society, and we have obligated ourselves to meet once a month, or, as occasions demanded, oftener. Looking back over the two years of our general meetings, can we point to any definite object accomplished? What were the prompting purposes of this Society? Was it for the mutual pleasure afforded by social intercourse, or for the dis-



cussion of timely or untimely topics? Or can this society get into the great, vast, palpitating vanguard that is resolutely advancing for the betterment of all forms of life and institutions—education, pure politics, conservation of life and health, civic reform, moral regeneration? A host of tremendous problems of wonderful strength and beauty, and a mysterious influence stir the hearts of men and women as never before. Never before in the history of the universe were there so many mysteries revealed. Medicine, electricity, chemistry—each has given up some cherished secret, some mysterious action—but only to the magic touch of him who has patiently, ploddingly, lovingly dug for the inherent sake of truth and life.

Can we face the embarrassing fact that of all professions the one of dentistry has been the most laggard, and our only progress a mechanical one? Are all dental societies meeting on the same plane as ours? Then no wonder that our profession has failed to produce such men as the Germans, Behring and Koch; or the Japanese, Kitasato—disciple of Pasteur. Men like these, men who have helped dispel the ignorance that nourished catastrophes like plagues and smallpox—once called retributions of a just God.

The Unsolved Problem of the Prevention of Caries.

Nor has our profession produced men who, like those who have checked the ravages of diphtheria, lockjaw, anthrax, the horrors of hydrophobia and other scourges. Is the dental field so limited in its possibilities that we have no call, no opportunity, no

hope for such investigations and efforts with their consequential discoveries and applications? Does our profession present such a lack of stimulating energy as to prevent any attempt to solve problems for the amelioration of those destructive powers found in dental caries? If it is possible for some individuals to be immune to dental caries is it not possible to make others so? Were gold the sole ambition of all men, a certain writer would not have been inspired to write:

"Scattered over the world, even to far Siam and the jungles of Africa, bodies of men are at work, not in quest of gold, or loot, or territory—but of means to *help* their fellows you and me, to ward off sickness and unneedful death. Stately pageants and triumphal arches are not for such as these, for they make war—not upon man, not upon the weak, but upon the malignant hosts of disease!"

Can you realize what men with such thoughts are accomplishing for mankind? What an inspiration for each of us to give our fellowman the best that is in us!

If we have personally chosen for our careers the profession of den-



tistry, then we have chosen wisely, for no other field presents wider opportunities for research, for accomplishment, than does the field of dentistry. What a blessed boon to humanity when dental caries shall have been wiped from the face of the earth. We may but vaguely conceive the effect upon humanity of the future when dental caries is eliminated through induced immunity. Is it afar off? Perhaps. Is it but a chimera? Not from present indications. Probably it will come slowly—but come it will. In the meantime shall we lag behind, or shall we be a force in assisting the arrival of the day to be?

Dimly, feebly, we of this society have made a few attempts, lukewarm in their first appearance, to have a free dental clinic established for our school children. Have we accomplished anything definite? Observe the force of unyielding determination. Already there is a reverberation; faint, but positive. We have laid a possible foundation urged on by our inner selves rather than by any visible help from the promising, protesting, noisy politicians. Who else but us to urge this? Who else but us who know so well the ills, and finally the good to be achieved through the education of our school children by these dental clinics? Is it not worthy and desirable to feel that by widespread knowledge of dental diseases and their possible elimination it will gradually banish disease and fear from the earth? Here, then, is an issue upon which we must force action and continue our efforts once the work is fairly begun. Not much will be accomplished until we wipe out selfish thoughts and leave our mind and will free to expand in the act of earnest, sound foundational work.

And let us try to be dominated, moved by a higher impulse and spirit. Pray that we feel the broader urgings of a deeper humanity in doing and giving our mite to the world's movement for some betterment of some poor, blind, struggling generation. Stirred on by impulses like these, urged on by more passionate fellow-feeling, and living a stronger, fuller existence, we shall come to feel that ours is a glorious work. Glorious and man-making in the conviction that we are fit to participate in the work of those men who are "scattered over the world even to far Siam and the jungles of Africa," seeking earnestly to banish some of the many miseries to which mankind seems to be heir.



President's Address.

By WILLIAM RADDIN POND, D.D.S.

Given at the annual meeting of the Rutland County Dental Society, October 29, 1912.

In starting the second year's work of this society, it may be well to review what we have accomplished to far, what we can do in the future, and what our aim, individually and as a society, should be. It seems to me that we have had a successful year. We are organized with practically all the dental practitioners in the county as members—and we also have that very necessary asset—enthusiasm. Our finanaces are in good order and we seem to be in proper shape to carry on a successful year's work. From an educational standpoint we have made a good start and I think it is safe to say that every one of us enjoyed the papers and discussions of last winter. Not least of all we have started a fraternal spirit which should grow to the enjoyment and profit of us all.

Value of Reading.

In this progressive age there is no profession or science which has made, or is making, greater strides than dentistry, and we must keep up in the van if we intend to hold the respect of our patients

and our own self-respect. We must read, we must study, and what better way to make the most of our reading than to discuss important subjects in society meetings, thereby being able to retain the best and most practical of these new methods and ideas, and to discard the chaff, so to speak. Again I wish to say we must study, we must keep up with our dental magazine reading. Personally, I have more respect for the man who has never seen the inside of a dental school, but has studied and kept up and improved himself during the years of very rapid progress, then for the graduate who, a few years back, learned enough dentistry, as it was then taught, to get a diploma, but who then and there gave up his study and with it his progress in the profession. former is striving to give his patients of the best, the latter is merely earning a living. The college foundation is nearer the ideal, of course, but is not sufficient to carry one through a successful professional career without further study. Let us all, therefore, whether graduates or nongraduates, try to perfect ourselves in our practice, in our theory, in ethics, and in fraternal spirit, and how better can this be done than by working together?



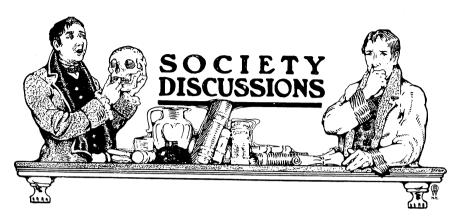
Much has been said about fees. Possibly we may become well enough acquainted during the coming year so that this matter can be safely dis-

cussed. My own idea is that this matter will in a measure adjust itself as we come to work more in harmony, more with the same ideas in mind, and more with a uniform understanding of theory and practice. These things we can accomplish by an interchange of ideas. Some excel in one line and some in others; none is perfect. Let us strive to profit by each other's success and also by each other's mistakes. How can the man who spends ten minutes on an amalgam filling hastily inserted, expect to receive the same fee as the operator who does the work properly and consumes an hour thereby? How can the man who spends hours in scaling and polishing teeth and in treating the gums, expect to work for the same fee as the man who polishes the front teeth and consumes ten or fifteen minutes in the operation? Both are doing what the public designates as "cleaning the teeth," but what a difference in result and consequent difference in what would be an honest fee! So on indefinitely. I use these illustrations not in the spirit of knocking, but to show in a practical way how necessary it is for us to "get together" on a more uniform understanding of our work and our duty to our patients. The education of the public is a simple matter if we go about it with unity of purpose, and eventually people will come to see that we are to be consulted and that our judgment on oral matters is to be taken as seriously as is the judgment of a physician who is consulted for other bodily ills. We must, in the nature of things, differ somewhat in our ideas, but not to such extent that should cause a feeling of distrust among those who consult different members of the profession. This community is blessed with very able and efficient medical practitioners. Let the same be said of our profession, and let us take the place which is rightfully ours, if we make it so, as practitioners of a very important branch of medicine.

The future of the society contains great possibilities, and possibilities of an extremely practical nature. The help to us locally, goes without saying, but we can also be of still wider usefulness by building up our State Society to be a help and pride to us all. We can develop men to take part in and help carry on our State Society. The State Society will become a component part of the great National organization, and we shall be doing our share in a very broad field. Locally we can do a great work as a society which could not be carried on by individuals. We must enter the field in the interests of the great movement for oral hygiene, for public school lectures, and greatest of all, in time we must strike for compulsory dental examinations in our schools. Lastly, let us foster fraternal spirit and good fellowship among our members.

Gentlemen, I thank you for the honor of being your first president. My most sincere wish is that this society may never have a last president.

517 July



Second District Dental Society of New York. November Meeting.

A regular meeting of the Second District Dental Society of the State of New York, was held on Monday evening, November 11, 1912, at the Kings County Medical Library Building, 1313 Bedford Avenue, Brooklyn, N. Y. The president, Dr. Hyatt, occupied the chair, and called the meeting to order.

The minutes of the last meeting were read and approved. The secretary also read the minutes of the adjourned meeting held on October 28th, which were also approved.

Dr. Lewis also stated that the Board of Health had taken over the management of the Brooklyn Dental Infirmary, and that a chain of municipal dental infirmaries will be established throughout the city.

Under "Incidents of Office Practice," President Hyatt showed a boy of fourteen, in whose mouth nineteen of the permanent teeth had failed to erupt. A number of radiographs were taken, which disclosed the fact that the teeth were not in the jaw, and that the boy would never have them. The result is a very abnormal occlusion, with the cutting edges practically coming up to the gum line of the upper teeth. President Hyatt and Dr. Palmer intend to treat the case, and will show the boy again when they have completed the case.

President hyatt.

I think we are extremely fortunate in having Dr. MacKee with us. It has been my pleasure, as well as good fortune, to have become very well acquainted with the essayist, who is making a specialty of radiography, and who is also very desirous of developing the technique in dental



radiography. In a conversation with him, I found that a number of dentists seemed to be unappreciative of the possibilities of radiography in general practice; so a little class was formed, just to try it out, and those men who were members of that class met once a week at Dr. MacKee's office, and took up the study of radiography, and were so much impressed with the value of it and its possibilities, that Dr. MacKee was invited to address us.

One of the things the essayist would like to do is to co-operate with the dental profession in finding out the after results. For instance, when a patient comes and poses, it is often left at that, and the technique is not developed as to what happens afterward; whereas it is important to know what happens in three months, six months or a year. Dr. MacKee is anxious to get in touch with the dental profession, and to work with them, and find out the different stages that radiography will show in the cure of these patients, and what the appearances will be six months or a year after treatment.

I can say very frankly that he is interested in this work as an enthusiastic and ardent believer in its possibilities, and I believe you will realize the benefits our profession will derive from a closer study along the lines of radiography. It gives me great pleasure to introduce Dr. George M. MacKee, who will address you on "The Value of Radiography in General Dental Practice." (Dr. MacKee's paper was published in full in the June number.)

Discussion on Dr. Mackee's Paper.

To say that it is a pleasure to me to be here **Dr. F. C. Uan Woert.** this evening, hardly expresses it. To see the beautiful work Dr. MacKee has shown, makes me feel as if I wanted to go back to the office and begin all over again.

I can hardly agree with all he has said, in that I do not believe there is a necessity for so many large plates. I think for general practice the small films serve our purpose as well, if not better, in the average case. Of course, in complications other than those around the roots of teeth, there is not any question but that the large glass plate has value.

There is one point in particular that I want to emphasize, and I am glad it has been brought up by Dr. Mackee, and that is the necessity of careful interpretation of the radiograph by the radiologist himself. A great many of you know that for years I did a great deal of that work for the profession at large, and I gave it up. I gave it up because in making a radiograph for an individual, outside of the office, who was not familiar with the interpretation of radiographs, I was called upon to give not only the picture, but a diagnosis and a prognosis, all for a



fee of \$10. Then if the case went wrong in the hands of the man who did the operation, I received the blame.

I believe that the average practitioner can interpret or read a picture better from a print. The positive print is very much preferable





Fig. 1.

Fig. 2.



Fig. 3.



Fig. 4.



Fig. 5.

to a negative print, understanding of course that the picture is made as the essayist has described, it is a shadowgraph—the so-called negative is a positive; but if a negative is made from that, and a positive print produced, the inexperienced practitioner gets a very much better definition, and it is in many cases easier for him to comprehend and make a diagnosis.



Description of Slides.

This is a simple case, showing the absence of two laterals. I cannot see that a large plate would add anything to the value of this because there are no pathological lesions.



Fig. 6.



Fig. 7.



Fig. 8.



Fig. 9.

The question in this case (the same mouth) was whether the second bicuspids were under the temporary teeth. It is very clearly depicted in the slide and I cannot see the necessity for a large plate here.

The next is an abscess on an upper incisor.

Fig. 4. A broach had been inserted through the abscess to the bone itself before it was felt.



Another, showing an abscess on the upper right central with a portion of a gutta-percha filling pushed through into the abscessed area.

The next, a case of alveolar necrosis, which had been injected with Beck's Paste, defining very clearly the area involved.

The next, an abscess upon the first lower right bicuspid, with a lesion at apex of the second; in spite of a perfect root filling in the latter we see a sinus leading from same to surface of gum at the neck.

The next is a case in which the patient had suffered considerable pain and discomfiture without any apparent cause. The teeth did not respond to the regular test for inflammatory conditions or alveolar abscess. It is very clearly seen that both roots of the first molar on the lower right side are abscessed, which was proved true upon opening and finding a putrescent pulp.

This last slide is from a case in which there had been considerable difficulty in an effort to allay the flow of pus. Upon the development of the picture it was decided best to remove the first lower and second bicuspid.

These slides are shown to indicate that it is not necessary to use large plates for the average dental radiographic or X-ray work and while I appreciate the necessity in some isolated cases, I feel that perhaps Dr. MacKee is leading us astray a little in that we are to deduce from his remarks that the large plates are preferable to the small films. I recognize the necessity for the large plates in the few isolated cases that he has shown us this evening and I believe that these should be taken by one familiar with general rather than simply dental radiography.

I am very much surprised to learn that pus shows in a radiograph; that is to say, in dental radiography. I had supposed that the dark area around the end of the root which is so clearly depicted in some of the pictures shown this evening was due to the fact that the bone or process had been displaced to the extent of the abscess, hence, a darkened area due to the absence of osseous tissue in that place and not caused by the presence of pus. If it is the pus which shows dark it is new to me, and I should like to have it explained.

I am more than delighted to have heard Dr. MacKee and I am pleased beyond measure with this beautiful work which he has shown and while I do not agree with all that he has, I do accept the major part of it.



Dr. Jos. M. Levy, New York, I came over here more in the spirit of a missionary than anything else. How can you know that roots are properly filled unless you take radiographs? How you can make some of the diagnoses

you must make, without the radiograph to aid you, I do not know.



Fig. 1.



Fig. 2.



Fig. 3.

Your root filling goes in, your patient leaves and all is happy, and you think that you have put in a successful root filling. Some other man who does radiography shows up some of the horrrible examples of this procedure, such as you have seen here this evening.

I will trouble you to look at three sides of a case which I will show you later with the tooth inserted in the model as it appeared in the patient's mouth when I first saw it. I want to ask any of you gentlemen who do not make radiography part of your office routine, whether you think you would have been able to correctly diagnose this case as it presented.



The first slide (Fig. 1) will show the original conditions as nearly as I could reproduce them. The second slide (Fig. 2) shows the canal opened just at its beginning and a guide wire in place, and the third slide (Fig. 3) shows the tooth as it appeared when extracted. This patient presented with a perfectly sound crown of an upper left cuspid tooth about the root of which an abscess had formed. We opened into the pulp chamber to relieve the pressure and put in our guide wire just at the beginning of the root canal.





Fig. 4.

Fig. 5.

This slide (Fig. 1) will give you an approximate idea of the crown of this tooth as I first saw it. You will note that there is no decay present. This slide is from a plaster model which I have here and which you may see later. In the radiograph taken at this first sitting (Fig. 2) you see shows that the root is carious. Upon discovering this condition we extracted the tooth and Fig. 3 will give you some idea of what it looked like. I do not think any of you would have been quick to extract this tooth unless you saw it as I did with the aid of the radiograph. From the cervical margin of the crown to the morsal edge there was nothing showing at all that would lead one to suspect any serious trouble.

This case is particularly interesting on account of its relationship to the general health of the patient. When questioned the patient informed me that this soreness had been present for some seven months. He had struck himself just above the cuspid root and the pain was so severe he decided to see me in order to ascertain what the trouble might be. This patient was supposed to be suffering from progressive locomotor ataxia, but this condition has been sufficiently relieved since the extraction of this cuspid and the curretement of the alveolus to practically amount to a cure. That there was a general infection I have no doubt.



How any man who does not depend on radiography could have recognized this condition I do not know.

I would like to show you one or two more slides that ought to make you think seriously of making radiography part of your office routine.

This condition (Fig. 4), I think Dr. Van Woert will agree with me, we frequently see. This patient wanted a bridge inserted. Over the alveolus of the cuspid the gum was considerably inflamed and I suspected that a portion of the cuspid root might be present. In order to aid the extractor in his work we took this radiograph, which you



Fig. 6.

see, shows no portion of the cuspid root to be present, but a small necrotic exfoliation of the alveolus. You will also note the outline of the tip of a cuspid which appears high up in the radiograph. We made another exposure higher up and from it (Fig. 5) we discovered that the cuspid is lying across the hard palate and against the root of the lateral. This alveolar exfoliation in the appearance of the gum and in its touch under the probe very closely resembled a small portion of root. If, as is often done, the operator had undertaken to extract this supposed root without radiographic guidance, he surely would have regretted it before he got through.

This (Fig. 6) was an attempt to fill a first bicuspid. The patient had not complained about the cuspid and anybody treating the bicuspid who did not do radiography (or have it done to assist in his root work) would never have known that this blind abscess was present. There was a large carious cavity. We were treating this tooth when the second condition was discovered. This discovery was purely accidental. In rootwork in all but a few cases the cost of sending your patients to a



radiographic specialist makes this step impossible. You could not fill these roots and know they were properly done unless you had your radiograph.

The actual cost of these radiographs, exclusive of my assistant's time in developing, which is about five minutes, I figure to be about twelve cents. I am told you can buy an outfit with which you could successfully practice dental radiography for about \$150.

You cannot do perfect dental operative work, with the exception of filling simple cavities, unless you use radiographs.

Mould it have occurred to you to suspect that cuspid—the tooth carrying the crown?

Dr. Levy.

Dr. Levy.

complains of pain in that tooth why should you suspect the adjacent root merely because it bears a crown? You do not percuss every tooth looking for blind abscesses. After you had filled this tooth and your patient still complained of trouble you might then become suspicious of the neighboring teeth The only way to be certain is to take radiographs.

How are you to do root amputation or decide that it is necessary unless you do radiography? You cannot send every patient to the radiographic specialist; and if you want to do th's work and practice ethical dentistry you must practice radiography. The technique is not as difficult as perhaps we have been led to believe.

There is little to be said other than favorable, in connection with the work of Dr. Van Woert. Dr. MacKee's sinus work has been especially fine. So many of the laity have, in spite of all that has been written and said about it, a fear of the X-ray. They seem to have a horrible idea of the danger of the X-ray. They do not know that with an exposure of five seconds there is no possibility of burning, nor any danger of necrosis, nor any pain, nor even discomfort, nor the excessively bright light. The only light shown is the soft green ray, a soothing light. I am surprised many times at the erroneous ideas on the part of the general public, and I have been surprised at the extreme lack of appreciation of the importance of the work. I have known of many cases where patients have endured lengthy treatment when a simple radiograph would have located the trouble at once without any sacrifice of the tooth structure.

I feel that the evening has been a valuable one to me, and that I have learned much of this work.



mr. mackee. Dr. Mackee said that he was very sorry to hear anyone advise the use of prints or reproductions of radiographs for the purpose of interpretation or diagnosis. While he realized the value of prints as case records, for the purpose of demonstration and for publication, the speaker was of the opinion that they should never be employed for diagnostic purposes. He cited two reasons in support of this opinion, namely, that the best of prints fail to contain all the detail possessed by the original radiograph and that prints are misleading because of the large number of artifacts which they are likely to contain.

Regarding the comparative value of the so-called negative and positive prints, the speaker thought that there was very little difference, but it would seem that a print made directly from the original radiograph might contain more detail than one printed from a contact-plate made from the original negative. In brief, a "positive" print made from the original "negative" should possess more detail than a "negative" print made from a "positive" plate or film made from the original "negative." Prints naturally appealed to those who had not trained their eyes and minds to read original radiographs and it is quite possible that "negative" prints might produce a stronger appeal than "positive" prints, but the speaker thought that the entire subject of prints is unimportant to general dentistry and that their use for purposes of interpretation and diagnosis should be discouraged. For other purposes, however, any process that would produce a superior print is certainly a distinct advantage.

The speaker said he thought he had carefully defined his position regarding the interpretation of radiographs. He would again repeat that the interpretation of a radiograph was more difficult than its production. Dentists who have had very little experience in interpretation would naturally be compelled to rely largely if not entirely upon the radiologist's opinion. But even in instances where the dentist had had large experience he should be guided in the interpretation not only by a radiologist, but by the radiologist who conducted the examination. In this way errors due to distortion, artifacts, etc., would be reduced to the minimum. It is advisable, whenever possible, for the radiologist and the dentist to examine the radiographs together and the discussion will usually result advantageously to both.

Someone asked whether a diseased antrum cast a light or dark shadow on the radiograph. In reply, the speaker said that the resulting shadow would be a light one in comparison with the normal antrum. This is because more ray would pass through the normal than traversed the diseased cavity and would, therefore, reduce more silver and produce



a darker shadow. For the same reason an empty cavity in the alveolus will cast a black shadow. Such a cavity when containing fluid would naturally give a lighter shadow, possibly even lighter than the normal alveolus, and, as explained in the paper, there would be loss of bone detail.

Precautions Against Danger. Regarding the danger to the patient the speaker said that he had not entered into a deep discussion of this subject on account of time and space. With the present technique and with skill and care

radiography is devoid of danger to the patient. The X-ray, the speaker said, was now fairly well harnessed. By the use of the Benoist radiochromometer, the Beck qualimeter, the milliamperemeter and the interrupterless transformer, it is possible to estimate the quality of the ray employed. The Holzknecht radiometer estimates the quantity of the ray used. With an accurate knowledge of the quality and quantity of ray administered one can very easily remain well within the zone of safety. To explain further, the speaker said that 2 Holzknecht units of a Benoist No. 6 ray would produce an erythema of the skin, so that radiographs could be taken until I or I¹/₂ units had been administered, then a lapse of a month should be allowed before additional exposures are made. To enhance the safety to the patient the naked ray should never be allowed to strike the skin. A tube emitting a maximum of Benoist No. 6 rays also gives out rays of a quality as low as Benoist No. 2. These very low rays are the ones that are absorbed by the skin and produce the radio-dermatitis. A layer of aluminum from 1 to 3 mm. in thickness will filter out these objectionable, dangerous and use-This measuring of a filtered ray is of especial importance in radiography of the nasal accessory sinuses, for it precludes the possibility of causing the hair to fall out. Dr. MacKee said that it only required from 3 to 4 Holzknecht units of an unfiltered Benoist No. 6 ray to produce a loss of hair and he had seen this amount administered in the production of a single radiograph. This amount of ray, however, would not cause a permanent alopecia, but 5 to 6 units of the same quality would do so. By employing a Benoist No. 9 ray and a suitable filter, three or four radiographs through the head could be made with impunity. In ordinary radiography of the teeth it is usual to employ a No. 7, 8 or 9 ray and with the technique now in vogue a large number of radiographs can be made without danger of administering the ervthematous dose of 2 units.

Danger to the Radiographer.

Regarding the danger to the radiographer, Dr. MacKee said that the only way to avoid all possibility of danger is for the operator to be surrounded



by sheet lead during the exposure. He would advise every radiologist to carry a small piece of film, wrapped in black paper, in his pocket for a week or two and then develop it. If the film is fogged the protection, obviously, was not adequate.

Dentists Doing Radiography. Regarding the feasibility of the dentist doing his own radiographic work, the speaker said that this was a subject that would require rather lengthy discussion and it was a question that would have

to be decided by the dentist himself. If a dentist had the time, money and incentive to do the work there was no reason why he should not do It was practical, also, for a busy dentist to employ a medical or dental assistant, allow him the necessary time to develop the required skill and let him do the radiographic work. Such a powerful agent as the X-ray should not, however, be entrusted to a lay assistant for lègal as well as scientific reasons. In this age of specialism the speaker thought it doubtful if many dentists would find it profitable to undertake the work, although by so doing, assuming that the work were well done, there would be a distinct advantage to the patient because, in all probability, this diagnostic measure would be utilized more often than at present. The speaker said that the cost of the work, the time consumed and difficulties encountered, although far from being insurmountable, were too lightly spoken of by at least one of the gentlemen who had entered the discussion. Radiologists had been criticized for the size of their fees. Was this not also true of the dentists? The speaker said that he knew of several dentists who were doing their own radiographic work in a most satisfactory manner, but the patients were paying for it and were vigorously protesting against it. Inasmuch as a radiologist was compelled to and would willingly adjust his fees in accordance with the patient's income, together with the fact that the dentist would also desire to be reimbursed for radiographic work he did himself, the speaker said that from a financial standpoint he could not see where either the patient or the dentist would materially profit by the latter attempting the work. The question of the dentist assuming the rôle of a radiologist was associated with advantages and disadvantages and the problem required careful consideration and discussion.

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January Meeting.

The forty-fourth anniversary meeting of the Second District Dental Society of the State of New York was held on Monday evening, January 13, 1913, at the Kings County Medical Library Building, 1313 Bedford Avenue, Brooklyn, N. Y.

The president, Dr. Hyatt, occupied the chair, and called the meeting to order.

The secretary read the minutes of the last meeting, which were approved.

Dr. Gould moved that the ITEMS OF INTEREST be authorized to publish the letter sent out by this society to the judges. After some discussion the motion was carried. (This letter was published in the May issue.)

The paper of the evening, entitled "Orthodontia for the General Practitioner," was then read by Dr. Abram Hoffman, of Buffalo, N. Y.

Discussion on Dr. Hoffman's Paper.

I wish to compliment the essayist on the able manner in which he has presented this subject.

I was a little disappointed not to have found something in the paper with which I could disagree. You are probably all familiar with my views on the subject of specialization, and know that I believe the time has arrived when the orthodontist is performing just as important a service in relation to dentistry as the surgeon is to the general practice of medicine. Although the family physician may, and oftentimes does perform some minor surgical operations, he is not fulfilling his duty to his patient if he does not refer the more complicated cases to a surgeon.

I would like at this time to call the attention of the dental profession to a number of orthodontic measures which it is their special duty to look after and yet which are on the whole very much neglected. Some of these have been mentioned by the essayist but will bear repetition in this connection. The measures I refer to are what might be termed preventive or prophylactic orthodontia, such as the early detection of mouth breathing. There is no question but that the majority of dentists are remiss in their duty to the mothers who consult them in not more carefully investigating the child's breathing as well as general physical conditions. Another very important obligation of the dentist is to see to it that the deciduous teeth of the children coming under his care are not only kept filled and as free from caries as possible, but that if approximal cavities occur such material be used for the filling as will



restore and maintain the full contour. Also in this connection it is necessary to watch the temporary teeth, so that if nature does not absorb their roots at the proper time, they may be removed if found to be interfering with the normal eruption of the permanent tooth. In some cases it will of course be necessary to have radiographs made, in order to determine just what is the correct procedure.

I wish that every dentist in this city, or for that matter, in the world, who does anything in the line of cast gold inlays might so thoroughly familiarize himself with the methods of restoring the occlusal surfaces of the teeth as described by Dr. J. Lowe Young in a paper read at Toronto last year and published in the Journal of the Allied Societies and the Dental Digest,* that there would be an end of the present conditions. The flat glassy inlays we see so often not only seriously interfere with the orthodontist's retention in cases that have required treatment for malocclusion, but in some cases they even produce malocclusion; and even if they have none of these ill effects, when compared with the fillings advised by Dr. Young their inefficiency in mastication is certainly very great. There are a number of problems which the orthodontist is constantly called upon to face which the general practitioner ought to help him to solve; for instance, in my practice I have had an unusually large number of missing tooth germs as well as a number of cases in which the extraction of teeth had made necessary the opening up of spaces which must later be supplied by the dentist with some form of artificial substitute.

Now all you gentlemen know that at the present time it is the accepted practice among orthodontists to restore the teeth to their normal positions, creating spaces for any missing ones, and this is regarded as absolutely necessary, not only on account of restoring the teeth to their normal functions and the face to a contour consistent with the lines of balance and harmony, but it is considered absolutely essential if permanent retention is ever to be obtained. The problem, however, of supplying these missing teeth is one that, judging from my own experience, every dentist has a different method of meeting; and some of the methods adopted I feel are a serious menace to the life of the adjacent teeth; yet I think that it is not the place of the orthodontist to attempt to dictate to the general practitioner who has referred these cases to him as to how these restorations shall be made. I might say in this connection that the teeth frequently found missing are the upper lateral incisors and the lower second bicuspids.

^{*}Also see Items of Interest, May, 1913.—Ed.



I would like to ask the officers of this society if they will not procure a paper on this subject by some able prosthodontist for one of next year's meetings.

I have enjoyed meeting Dr. Hoffman and hearing his paper. Dr. Gough said he regretted there
was nothing he could disagree with, and I suppose
Dr. Hoffman would regret it if I could not find something to disagree
with. Consequently I am going to address myself as directly as possible
to what I understood the real subject of the evening to be, and that is,
orthodontia as it should be comprehended by the dental practitioner
who is not practicing orthodontia. In doing that, I will bring out what

exception I take to certain statements made by the author.

Orthodontia has three phases of knowledge—physiology, pathology, and treatment; and while I believe that it is well and proper to leave the treatment to the orthodontia specialist, I believe it is the duty of every practitioner who calls himself a dentist to know as much about the physiology and pathology of malocclusion as any orthodontist. What would we think of a general practitioner who could not determine that a headache was caused by the eyes, without consulting an oculist? The patient expects the practitioner to find out that the lesion is in the eye, and then refer him to the specialist. The general practitioner of dentistry should feel it a duty that he owes to his patients to know the physiology and pathology of orthodontia, so that he may not only intelligently select a specialist, but know whether the specialist is giving good treatment or not. This is particularly true just at this time—much more so than it will be twenty-five years from now. We are in the early stages of this science as a specialty, and at the present time many men are being attracted into the field by the supposition that there is money in it, rather than by any natural aptitude or predisposition for it. I believe that the only successful specialists in all branches of medicine are those who elect to practice a specialty because they find they have a special bent or fitness for it; but at the present time there are a great many incompetent men who are having cards printed with "specialist in orthodontia" when their only qualification is in the announcement they make.

I think the physiology and pathology of this science should be understood by all practitioners.

By physiology, I mean the whole knowledge of occlusion, or what Dr. Angle calls normal occlusion.

By the pathology of the science, I mean the whole realm of malocclusion and the causes. Here I will take exception not only to the views of the gentleman who read the paper, but I will say I believe I



am placing myself in antagonism to all of the teachers and to the general trend of teaching. I have for a long time felt that the time must come when an assertion of this kind should be made. I am not ready yet to prove this, but I say it even if I cannot prove it, because someone else will either prove or disprove it: I do not believe that stress, occlusal planes or percussive force have anything to do with normal occlusion.

I believe misplaced stress and malrelation of inclined planes may be factors in malocclusion. Stress may play a part in the pathology, but I do not believe stress plays any part whatever in normal function.

To make plainer what I mean, the essayist spoke of percussive force as aiding in widening the cuspid region. I do not believe that, because if that were true, whenever the teeth are retained and the percussive force is present, why should not this occur? Moreover, I do not believe that what I might call the horizontal growth of bone is due to any stress of the incoming teeth, nor do I believe the vertical development of the dentition is in any way due to any eruptive force exerted by the teeth.

·I believe that in the normal, an all-wise God has so arranged that growth occurs coincidentally with the necessity for it, and that there is no such thing as stress to produce that which Nature intends shall occur.

This brings me to a very important point, which should be well comprehended by the general practitioner. We know that coincidentally with the eruption of, let us say the permanent bicuspids, we have a shedding of the previous teeth—the two temporary molars, and we note when this occurs normally that the crowns of these shed deciduous teeth come away without any roots. These roots have been resorbed, and these permanent teeth have taken their place. We know also that if these temporary molars are prematurely removed, and normal eruption of the bicuspids is occurring, we frequently find a resorption of the roots which will give us the exact shape and contour of the incoming teeth.

It has been believed that a resorption of the roots of the temporary teeth is due to the eruption of the permanent teeth. That I do not believe, and I think I have proof to the contrary which I expect to present in the near future. The point I want to make is that these are not cause and effect in normal function, but merely coincidental occurrences which are normally occurring. Nature has provided that the temporary tooth must lose its roots in order to allow the approach of the incoming tooth, and as the temporary roots are resorbed, so the other tooth comes up. So far from believing that there is any eruptive force of that tooth or any influence exerted which causes the normal resorption



of that tooth, I believe exactly the contrary is true, and that in the normal, the resorption of that tooth occurs so as to remove the bony obstacle to the eruption of the incoming tooth. If for any reason this resorption does not occur-and this is the point I particularly want the general practitioners to take note of-we immediately have inaugurated a pathological condition. We then have the force of the erupting tooth beginning to come into evidence—in other words, the growth of the root of the incoming tooth moves it upward in its socket and causes it to come into actual contact, or nearly so with the temporary root which has not resorbed, and we get a traumatic and pathological absorption of that root or else a deflection of the erupting tooth. We see evidences of this where often you find a deflected central incisor in the lower arch -erupting lingually; you remove the temporary tooth and you find the lingual surface has been eaten away. That is not normal resorption that is pathological absorption in my opinion, or at least it is absorption caused by the impingement of the erupting tooth.

That is not a matter of very great importance in that particular region, because it is very easy for the practitioner to determine what to do when he sees a tooth erupting lingually—the temporary tooth should The most fundamental observation and teaching would be removed. indicate that. We come to a more serious problem, however, when we come to the second temporary molar, because it has been preached—and correctly—that the temporary molar should not be prematurely removed; but it is just as important that it be not too long retained, because if it is it must influence and cause a malposition of the tooth beneath it. Very often the molar is retained in this way. Coincidental with this horizontal growth in the mandible-and in the upper jaw it is the same—there is apparently a vertical development. Not only do the roots of these molars resorb in order to make room for the tooth beneath, but the distance between the nose and chin increases, and the teeth keep pace with this growth and retain their relation to the occlusal plane. If for any reason the second temporary molar does not obey this law of growth, does not rise vertically in its socket, as soon as the sixth year molar has risen high enough so that the so-called contact point would be high enough, it will ride over the distal ridge of the temporary molar-the first bicuspid coming in forward will do the same-and you will find the second temporary molar wedged between the bicuspid and the permanent molar, and really lower than the occlusal plane.

That tooth cannot be shed and the result is that as it is not being shed and not losing its roots as it should, it must exert a deleterious influence on the bicuspid below. In addition to causing a malposition of that tooth, either by torsion or by malocclusion, it may do more. I



believe a tooth should be allowed to erupt during the normal period of its eruption, and if that is prevented it is likely to become impacted. There seems to be a natural time for a tooth to erupt, and if it is detained beyond that time, we get a new condition of affairs, and unless interference is inaugurated, that tooth becomes an impacted tooth.

I believe at that period where all but the temporary molars have been shed, it would be well to study the occlusal planes closely, and take radiographs to determine whether it might not be wiser to remove the temporary molars and retain the space to allow the bicuspids to erupt, rather than leave them in, because of the teaching that temporary teeth should be left in as long as possible. They should be left in for their full term, and we cannot say what the age is, but as soon as the first bicuspid is fully erupted, it is pretty nearly time for the second temporary molar to begin to loosen and thus show signs of shedding.

That is one of the problems I wanted to bring before you.

As the essayist has said, this whole subject of what the general practitioner should know about orthodontia is a very long one. Perhaps the doctor will come next year and give us the second chapter. I think there is room for a paper on the subject of treatment. I admit the essayist's views are classic views, but I believe that like many classic views they will have to be revised. I think we will have to know a great deal more about tooth eruption and root resorption than we know at present, before we can say what is really normal eruption.

President Tyatt.

We have the pleasure of having with us a professor of orthodontia, and we would be pleased to have Dr. Milo Hellman continue the discussion.

Dr. Milo Fellman.

There is little to add to the paper as presented by the essayist for the fundamental principles of orthodontia have been preached by the authorities on

the subject, and they were well presented to-night. What I have to say would be on the same line as what Dr. Ottolengui said, and I would add a few points to what he proposed. In order to know orthodontia, it is not only necessary to know physiology, pathology and treatment, but it is very important to know thoroughly the anatomy of the parts, and, futhermore, to know the development—and that is embryology—because, in my estimation, the knowledge of orthodontia is nothing more than a thorough knowledge of growth, and since we do not know where growth begins, unless we go way back, we cannot say growth begins at any stated time, but we must go back to our embryology to know any deviation from the normal growth.

In reference to the eruption of the permanent teeth and resorption of the roots of the temporary teeth, I would refer Dr. Ottolengui to a



very fine essay on the subject by Guido Fischer. It was published in Germany and it is a very thorough discussion. I would recommend it to everyone who is interested in the matter because the author went through a great deal of research work, and this stage is presented by word and picture from actual findings.

When your essayist referred to classification, he said that we classified according to the first molar. If he cited Dr. Angle, I think that is wrong; because Dr. Angle also uses the jaws and the dental arches, since the first molar has been known sometimes to be misplaced from its position, and we must take other factors into consideration.

May I ask the essayist a question? I represent Dr. Williamson. Dr. V. H. Jackson. The essayist showed a slide during his remarks on temporary teeth, and I got the impression that he meant to insinuate that spaces should be created between the anterior teeth in order that the jaw might be large enough for the permanent teeth. I supposed that a normal occlusion of temporary teeth insured a normal occlusion of permanent teeth.

I would like to ask also what prenatal influences affect occlusion. I have some models with me which I would be glad to show, of V-shaped arches, where by simple expansion the space has been increased until the permanent teeth will probably take their normal position. I would therefore think that the spacing between the anterior teeth is hardly necessary, and I would like to have that point made clear by the essayist.

As to the missing tooth germs spoken of by Dr.

Dr. Foffman. Gough, I am unable to add anything. I have observed that sometimes the lower incisors have been missing, but most frequently I have found that bicuspids have been the missing teeth.

Dr. Ottolengui has said there is a resorption going on, regardless of whether the permanent tooth germ is present or not. I am not able to explain that to you. It is a subject that has been very interesting to me, because I have had quite a few of these cases, especially in the clinic connected with the school, and it is a subject where there is food for study.

Dr. Ottolengui spoke of the deciduous molar becoming impacted between the bicuspid and the molar; there is at this time in the clinic a very interesting case of that kind.

With reference to stress and percussive forces in bringing about a harmony between the arches, I am glad to have Dr. Ottolengui's opinion in that regard. He has a characteristic and forceful way of presenting things that make a person sit down and think. Most of the authorities in orthodontia are of the opinion that these percussive forces do have



an influence in maintaining the area in a certain portion of the alveolus. If that is not the case, there again is food for study.

Dr. Ottolengui has expressed in better language, perhaps, than I have, and more forcibly, the idea of orthodontia for the general practitioner. He perhaps has gone a step farther, and includes the man in general practice who does not care to do orthodontia; whereas I rather qualified it by saying if a man were interested in the specialty, he should forthwith make a study of all the correlated subjects, bringing out the thought that he should not only study the embryology and tooth movements, but also the histology and physiology, and Black's book, and everything else he can study; and then study some more.

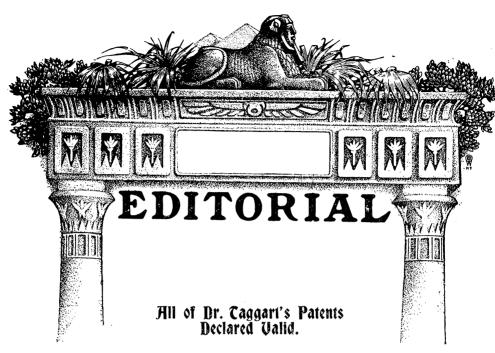
Dr. Hellman brought out some interesting points. I am glad the point with reference to the diagnostic signs was brought out, because sometimes the first molars do drift. The first molar is perhaps the point most easily located, but the other tissues should be studied along with that.

I believe in most cases where we find an absence of spaces between the lower incisors particularly, and also between the upper incisors, in the deciduous teeth, and when the conditions in general have the appearance of narrowing down and settling together, we should certainly undertake operative interference.

The commonest evidence of prenatal influence, I believe would be cleft palate.

I want to thank the gentlemen who have emphasized these points. What I have given you is my idea of what the general practitioner should understand in orthodontia. The diagnosis and the etiology and the physiology and pathology are subjects in themselves, and the treatment is secondary. It is impossible in one paper to cover it all, and a paper on treatment for the general practitioner would naturally begin about at the point where this paper has left off.

I want to thank you for the kind reception of my paper. I make no claims of originality in it. It is that which I find the average dentist does not know. There are always men well posted on these points in every locality. I thank you for the honor of having been with you, and express my appreciation for the good time you have given me.



In an editorial in the April issue of ITEMS OF INTEREST, when discussing the adverse decision of the court against Dr. Taggart in the Taggart-Boynton case, we notified our readers that Dr. Taggart had already at that time brought suits under all of his patents in Chicago. We warned our readers that the Washington decision was not a final ajudication against Dr. Taggart; we tried to make it clear that the Boynton case involved but one patent, whereas Dr. Taggart holds four patents, and we pointed out more particularly that the decision is binding only within the District of Columbia, which is the limit of the jurisdiction of the Court of Appeals of that district.

One of the suits to which we alluded in the April editorial was a suit against Dr. B. C. Moll, alleging infringement. This suit was entirely different from the Washington case. There Dr. Taggart asked that Dr. Beynton be enjoined from using his patented process, the same being "a process for making molds for casting dental inlays." In the Chicago case Dr. Taggart sues Dr. B. C. Moll, alleging infringement of all four of his patents and asking for damages.

The case was tried in the United States District Court, Northern District of Illinois, Judge Landis presiding. Judge Landis is widely known throughout the United States, having presided in many famous



cases. He decided in favor of Dr. Taggart, declaring both of his process patents valid in their entirety (one for making molds for casting inlays and the other for the casting of the inlay and the inlay itself), and he sustained the machine patent and the mold patent with the exception of a few claims. The decree is published in full in this issue.

Oral Opinion of Judge Eandis.

In handing down his decision the Judge orally expressed his views, and these remarks should be of special interest to the dental world, partly as the opinion of a learned judge as to the nature of the evidence by which members of a reputable profes-

sion would attempt to override the legal rights of one of its own members and one of its greatest benefactors, and partly because of the value which the judge attributed to the invention considering it from the viewpoint of a patient. The following is the oral opinion of Judge Landis (verbatim from stenographer's notes, unedited):

"The Court: I know very well that for many, many years the very best dentists that I could employ tortured the life out of me by pounding my teeth. A day came when I went into a dentist's office and he didn't pound my teeth, but he slipped a thing into a hole in my tooth and that was the end of it. Now we come in here where the question is litigated. First, it displayed inventive genius to do the thing that relieved me from that distress. Now, of course, I am willing to take my hat off to the man that did it, having, as I say, gone through the experience of this matter. I regard the process, or whatever it was, that eliminated from my life the necessity of submitting to that torture as one of the two or three greatest steps in the world's arts. I would probably be willing to put it ahead of steam engines and airships and everything else. Having this morning spent two hours in a dentist's chair, I speak feelingly about it.

"Now, as against this claim of this man who tells the story that beginning with 1881, or 1880, or 1882, whatever that year was, year after year, month after month, day after day, he worked on this thing and finally got it around to a point where there was presented to his fellow dentists a statement by him, accompanied by an exhibition of a machine; by this process and by this thing we can accomplish this result. Instantly his profession took it up, adopted it, and from that time on it has practically, universally employed the process and the machine. Now, that's the evidence.

"As against that there are several dentists who come here. One of them says that many years ago (the first one who testified), having

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an engagement to put a filling in a patient's tooth, owing to some misadventure, could not wait until the next day. This dentist at that time did the thing that Taggart now claims was the result of all of his work which he was able to accomplish. Now, that may have happened, but it is a most startling thing to me that that dentist kept still about that thing that he now claims that he did. It is strange nobody found it out, and it is strange that he didn't immediately make a habit of filling the teeth of his patients that way, because we all agree now that it beats the old way all to pieces.

"The evidence in this case as to anticipation is, I must say, exceedingly weak. It does not impress me a bit. I don't take any stock in it; I don't take any stock in it. I think this man has done this thing on this record and is entitled to it, and I will give him a decree on the broad claims. I am sorry you cannot go up with this, because again this morning I received another copy of the decision of the court in the District of Columbia, stating with equal directness the opposite view of this situation from the view I have just given expression to.

"Mr. Bulkley: Your Honor will remember that in the Washington case the witnesses were more numerous.

"The Court: Yes, I read the decision, and if those witnesses, if this had been supplemented with that evidence, it would not change my judgment on this proposition."

Che Position of "Items of Interest."

With the views of the learned judge we are bound to agree, and it is because the writer, being a dentist, and being conversant with the history of his profession in regard to the making of inlays, was qualified to weigh the evidence, that he long ago

decided that the evidence with which it was hoped by Dr. Taggart's antagonists that his patents would be set aside would in the end prove ineffectual.

In the Chicago case, as in the Washington case, inlays were declared to have been cast, which upon examination were plainly seen to consist of two or more metals. Shame upon the men who would present such evidence in an attempt to deprive a man of the fruits of his labor. And shame upon the men in the profession who would wish to profit by a suit won upon such evidence. But in defense of the profession as 3 whole, it may be said that perhaps not one-half of one per cent. of the dentists of the United States know anything of the evidence which has been presented. The real blame must rest upon a few heads.



To us it seemed but a duty to our readers and to the dental world that we should study the evidence and the patents, and the lawyer's briefs, to the end that we might arrive at an estimate of the righful outcome. This was done, and though perhaps it was for a time an unpopular course, we have consistently prophesied that Dr. Taggart's patents are valid and would be so declared. And now they have been so declared by one of the most prominent judges in the country. Those who have believed that our advice was sound will now rejoice, partly at knowing that they acted in a legal and righteous manner, and partly because (whisper it) they are not now liable for damage suits.

Che Inlay Patent. This decision reaches us just as we are ready for the press, and it is impossible to analyze it and advise our readers of the present status, as we would like to do. We may make one statement, however,

and that is that, so far as dental practitioners are concerned, the great importance of the decision lies in the fact that it sustains a patent on a process for making an inlay filling by casting, and, furthermore, it should be pointed out that this patent was not before the court in the Taggart-Boynton case, and, indeed, was not granted until 1911. Therefore, this is the first decision on this particular patent, and reference to the decree in the Taggart-Moll case discloses that the defendant, Moll, is enjoined from "making, using or selling any dental inlay formed entire of cast metal." Moll is also enjoined from continuing the manufacture or sale of his casting machine, which is declared to be an infringement of Taggart's patents. Whether this decision would cover all the casting machines now on the market the writer would not care at this time to determine, but it is quite evident that unless the patent on the cast metal inlay (declared valid by Judge Landis) can be set aside, it matters little how or with what machine the casting may be made, or may have been made, all who have made or may make such inlays are liable in damages to Dr. Taggart, a situation from which those who have followed the counsels of this magazine have escaped.



Decision in Taggart-Moll Case.

IN THE UNITED STATES DISTRICT COURT NORTHERN DISTRICT OF ILLINOIS

EASTERN DIVISION

W. H. TAGGART,

Complainant,
In Equity, No. 30,850.

vs.

B. C. Moll,

Defendant.

DECREE

This cause coming on to be heard on the pleadings, proofs having been taken in open court, the case having been argued by Russell Wiles. Esq., on behalf of complainant and C. C. Bulkley, Esq., on behalf of defendant, and the court being now fully advised in the premises the court finds as follows:

I. The defendant produced in open court evidence to support his charge of anticipation by himself, by Dr. J. O. Ball, Dr. Jacob G. Shottler, W. E. Harper, James H. Prothero and Lucian H. Arnold, and the court having heard said evidence finds that said defenses are not established and that nothing was done by said Ball, Shottler, Harper, Prothero, Arnold, or the defendant Moll in any way anticipating any of the claims in suit.



2. Letters patent Nos. 865,823, 872,978, 983,579 and 983,580, all granted to complainant and covering respectively, "Apparatus for Making Molds for the Casting of Dental Fillings and the Like," "Method for Making Molds for Dental Inlays and the Like," "Method for Making Dental Inlay Fillings and the Like," and "Apparatus for Making Castings" are owned by complainant as charged and that claims 1, 2, 3, 4, 7 and 9 of patent No. 865,823, claims 1 to 12, inclusive, of patent No. 872,978, claims 1 to 13, inclusive, of patent No. 983,579 and claims 2, 3, 4, 6, 7 and 13 to 20, inclusive, of patent No. 983,580 are good and valid in law over all the references set up in defendant's answer.

3. The court further finds that defendant has without leave or license infringed each and every of the claims enumerated in paragraph 2 hereof by using apparatus for making molds within the claims of patent No. 865,823, by practising the method of patent No. 872,978, by practising the method and producing the inlay fillings set forth in patent No. 983,579 and by making, using and advertising for sale a machine

in infringement of patent No. 983,580.

4. The court further finds that claims 5 and 6 of patent No. 865,823 are anticipated by letters patent to M. W. Hollingsworth, No. 708.811.

IT IS THEREFORE ORDERED, ADJUDGED AND DECREED that a writ of injunction issue out of this court perpetually enjoining the said defendant Moll, his agents, attorneys, servants and workmen from further infringement upon any of the said claims of said patents enumerated in paragraph 2 hereof and particularly from further manufacturing, using or selling the apparatus for making molds and the apparatus for making castings which he, the said defendant, has heretofore employed, or from further practising the methods for making molds for casting dental inlay fillings and the method for making dental inlay fillings which he has heretofore employed in infringement of said patents or from making, using, or selling any dental inlay formed entire of cast metal. It is further ordered that this cause be referred to Mr. Charels B. Morrison, a Master in Chancery in this court, to take and state an accounting between the parties in accordance with the statutes and the practise of courts of equity for such cases made and provided.

Copy of Summons to Defendant, B. C. Moll.

UNITED STATES DISTRICT COURT NORTHERN DISTRICT OF ILLINOIS

EASTERN DIVISION

W. H. TAGGART,

Complainant,
In Equity, No. 30,850.

B. C. Moll,

Defendant.

To B. C. Moll, Defendant:

In pursuance of the authority and direction contained in a decretal order made in this cause by the Hon. Kenesaw M. Landis, United States



District Judge, at a stated term of this court, held in the United States courtroom usually occupied by him, in the Federal Building, in the City of Chicago, Ill., on the 20th day of June, A.D., 1913, I, Charles B. Morrison, as Master in Chancery of this court, do hereby summon you, B. C. Moll, defendant in the above-entitled cause, to appear before me, the said Charles B. Morrison, at my office, room 652, Federal Building, Chicago, Ill., on the third day of June, 1913, at ten o'clock in the forenoon, to attend there a hearing before me, the said Master, of the matters in reference to the said cause, to be had by virtue of the decretal order aforesaid, and herewith fail not at your peril; that you then and there render a sworn statement of account, in writing of the apparatus made and sold by you under either of the apparatus patents set forth in said decree, and of the work done by you in accordance with the process of either of the process patents mentioned in said decree or any part thereof, or employing the apparatus of either of the apparatus patents mentioned in said decree, and of the dental inlay fillings of said patent No. 983,579, all being in infringement of United States Letters Patent Nos. 865,823, 872,978, 983,579 and 983,580, issued to William H. Taggart and sued on herein, and all the gains and profits realized or received thereon by you, including in said statement of account a detailed list showing the number of said devices for making molds and the number of said devices for making castings, together with the names and addresses of the persons to whom sold and the prices received therefor, and also the names and addresses of the persons for whom dental inlays or dental inlay fillings have been made by you in infringement of said Letters Patent, together with the amounts received therefor, respectively.

That you then have with you, before said Master, all the books and vouchers in your possession on which the said data above requested was originally entered, together with all books and vouchers in your possession which show the cost of labor and materials used in making said infringing devices, or said infringing inlays or fillings, and especially all day-books, journals, ledgers, order-books, entry and cash-books used by you during said infringing period.

Dated this 20th day of June, A.D. 1913.

Master.

I accept due service of the above summons this 20th day of June, 1913.

Defendant's Solicitors.

H-New Dental Law for Vermont.

An Act to Regulate the Practice of Déntistry.

It is hereby enacted by the General Assembly of the State of Vermont:

Section 1. The State Board of Dental Examiners shall consist of five dental practitioners of good standing, who have practiced in this



State for a period of five years or more. Each member hereafter appointed shall hold office for a term of five years from and including the first day of January in the year following his appointment and until his successor is appointed, and no member shall serve for more than two full terms. The governor shall annually, in the month of December, appoint an examiner to succeed that member of the board whose term expires on the first day of January following. A vacancy in the board shall be filled by the governor.

Sec. 2. The meetings of said board shall be held annually at the State house in Montpelier, or oftener on the call of three members, and thirty days' notice of such meetings shall be given in at least three dental journals circulating in this State. Said board shall annually, at its first meeting after the first day of January, elect from its members a president, secretary and treasurer, and shall make annual reports to the governor and to the Vermont State Dental Society.

SEC. 3. A person above twenty-one years of age, of good moral character, and who is a graduate of a reputable dental college or school, or of a college or school authorized by law to grant diplomas in dentistry, and who is a graduate of a high school or academy of the first-class approved by the superintendent of education, or who furnishes evidence of an education equivalent to that of a high school of the first-class, shall upon the payment of a fee of twenty-five dollars, be entitled to be examined, and, if found qualified, shall be licensed to practice dentistry, dental surgery and medical dentistry, and shall receive a license signed by the members of the board of examiners. The examinations shall be elementary and practical, but sufficiently thorough to test the applicants' fitness; they shall be wholly or in part in writing, in the English language; and shall embrace the subjects of anatomy, physiology, chemistry, materia medica, therapeutics, metallurgy, histology, pathology, bacteriology, anæsthesia, oral surgery, operative and prosthetic dentistry, orthodontia and crown and bridgework, with demonstrations by the applicant in operative and prosthetic dentistry. An applicant who fails to pass a satisfactory examination shall be entitled to a reëxamination at any future meeting of the board without payment of a fee, but for any subsequent reëxamination a fee of five dollars shall be paid. Rules relating to qualifications of applicants and to conduct of examinations and to the granting of licenses may be made by the board of examiners.

SEC. 4. Said board, in its discretion, may, without examination, issue a license to a dentist who has been lawfully in practice in another State for at least five years upon the payment of a fee of twenty-five dollars, provided such applicant presents a certificate from the Board of Dental Examiners or other like board of the State in which such dentist has practiced, certifying to his competence and good moral character, and provided further that such State maintains a law of requirements equivalent to our own and grants a like privilege to dentists licensed to practice in this State.

SEC. 5. Any duly licensed dentist of this State who is desirous of changing his residence to that of another State shall upon application to the Board of Dental Examiners receive a certificate which shall attest



that he is a duly licensed dentist in the State of Vermont. The same shall be given without fee.

Sec. 6. The Board of Dental Examiners shall keep a book in which it shall enter the name of each person licensed as provided for by this act.

SEC. 7. A person who receives a license from said board shall, within thirty days from the date thereof, cause it to be recorded in the office of the Secretary of State and shall pay him fifty cents for recording the same. Such license duly recorded by the Secretary of State or a duly certified copy of such record shall be evidence of the authority of the person therein named to practice dentistry.

SEC. 8. If a person does not cause his license to be recorded within the time required by the preceding section, he shall forfeit the same, and shall not be relicensed until he has paid the board a fee of twenty-five

dollars.

SEC. 9. Whoever engages in the practice of dentistry in this State shall keep his license displayed in the room or rooms in which he practices, in such manner as to be easily seen and read. A person who practices dentistry under a fictitious or assumed name, or who, not being licensed, practices dentistry or advertises or holds himself out to the public as a dentist, or assumes the title of "Doctor of Dental Surgery" or "Doctor of Dental Medicine," or appends the letters "D.D.S." or "D.M.D." to his name, not having the right to assume such title by a degree conferred upon him by a college or school empowered by law to confer such title, or who shall wilfully make a false material statement in his application and license; or who changes or alters a license issued by said board, shall be fined not more than one hundred dollars nor less than twenty-five dollars, or imprisoned not more than three months, or both. A license granted to a person not entitled thereto may be revoked by the board, and a license may be revoked for immoral or unprofessional conduct of a licensee; but such revocation shall be upon notice to the licensee and a hearing at which he shall be given an opportunity to be heard, and when a license is revoked such revocation shall be recorded with the Secretary of State. Nothing in this act shall be construed to interfere with the rights and privileges of physicians and surgeons licensed under the laws of this State; nor to any person who is now practicing dentistry under a license granted under the existing laws. Nor shall it apply to the mere extracting of teeth by a person who has been engaged in that work for a period of five or more years in this State; provided, however, that such person file in the office of the Secretary of State previous to February 1, 1913, an affidavit that he has been so engaged for such period.

Sec. 10. The treasurer of the board or the person whose duty it is to receive all monies for examinations and certificates, shall quarterly make a report to the State treasurer of all examinations given and certificates granted, and to pay into the State treasury all monies received

by him for such examinations and certificates.

SEC. 11. Each member of the Board of Dental Examiners shall receive four dollars a day for services rendered and necessary expenses.

SEC. 12. This act shall take effect from its passage.



Dr. John Nutting Farrar, D.D.S., M.D.

Dr. John Nutting Farrar, the celebrated orthodontist, died suddenly at his home in New York City, on the morning of June 12th, of a complication of disorders.

"Dr. Farrar descended in direct line, both on the father and mother's side, from noted families in England and America—the Farrars, Lawrences, Washingtons, Nuttings and Parkers. The Farrar genealogical record carries the name back to A.D. 1066, to one who was 'Chief of Horsemen' (Cavalry) in the Army of 'William the Conqueror.' The horseshoes on shield and crest dates from that time. The motto Ferreva Ferma (Firm as Iron) was given by the Conqueror's father before the time of the siege. It indicates a trait of character that especially distinguishes the subject of this sketch.

"The first of Dr. Farrar's predecessors in America was John Farrar, of England, who, while residing in America, married Mary Collins, of Lynn, Mass., August 2, 1715, and moved to England, where three children were born to them—two sons and one daughter. Their first child, John, was born July 19, 1717, and when of age was commissioned in England as 'Major John,' who later moved to Framingham, Mass., and was called 'Major John Farrar, of Framingham.' Major John had twelve children, the youngest being Samuel, 1st. Through the mother of Samuel Farrar, 2d, who was Mary Nutting, daughter of Capt. John Nutting and his wife Martha Blood, daughter of Martha Lawrence (wife of William Blood) and daughter of Nathaniel Lawrence, descendant of Robert Lawrence (Lawrence flourishing like a bay tree), of Lancashire, England, born probably as early as A.D. 1150, and the ancestor of the earliest families of that name in England, who attended his sovereign Richard Cœur de Lion to the 'War of the Crusade,' in the

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Holy Land, and so distinguished himself in the siege of Acre that he was knighted as Sir Robert of Ashton and obtained for his arms 'a cross raguly, gules,' A.D. 1191. The arms of Sir Robert of Ashton Hall, conferred by Richard I, was 'argent, a cross raguly, gules,' were also those of the Lancashire branch generally. He bore also 'Ermine, a cross raguled gules by the name of Lawrence of Lancashire.'

"Dr. Farrar descended in direct line from James Lawrence (A.D. 1252), grandson of Sir Robert Lawrence of Ashton Hall (A.D. 1191), and his wife Matilda de Washington (heiress), daughter of John de Washington (A.D. 1215), who was great-grandson of Bondo de Washington (A.D. 1130) and wife, who were the progenitors (foreparents) of both General George Washington and John Nutting Farrar.

"John Nutting Farrar was the fifth child of Samuel Farrar, 2d (J. P.), grandson of Major John Farrar. The mother, Rebecca Parker, was a woman of marked character, inherited from a long line, equally as distinguished as that of the Farrars. The original (P.) settler upon American soil was Deacon Thomas Parker, who embarked from London, England, March 11, 1635, aged thirty, and made his home (the same year) in Lynn, Mass. The grandfather of Dr. J. N. Farrar, Deacon Jonas Parker (descendant of Deacon Thomas, who was the progenitor of Theodore Parker, the Boston Divine), was born July 16, 1766, and married Ruth Farmer, 1st, December 28, 1788. The latter died February 5, 1828, leaving several children, among whom was Rebecca, the mother of Dr. Farrar."*

Dr. Farrar was born April 24, 1839, and was therefore seventy-four years of age. His early life was spent on a farm, but his genius was for mechanics and he was also much inclined toward invention. Among his inventions were elastic car wheels, a water meter and a typewriting machine, said to be the first of the kind.

He also originated a screw acting syringe, which enabled the operator to inject medicines slowly, and likewise a syringe for treating the antrum which delivered a spray, by which means the walls of the sinus could be thoroughly washed, even those parts behind the point at which the syringe had penetrated the cavity.

But his most important inventions were in connection with multifarious appliances for the regulation of teeth. Dr. Farrar was probably the first to use gold exclusively for regulating appliances, and his fixtures were wonderful combinations of spring and screw force, which he applied with such deftness and certainty that he was able to so control his anchorage that all the stress exerted by his appliances were expended in producing the definite tooth movements desired.

^{*}Dental Brief, May, 1911.



Dr. Farrar called his system the "Positive Method of Regulating Teeth," which recalls a witicism at his expense by his lifelong friend and contemporary, Dr. Norman W. Kingsley, who, curiously enough, died but a few months before Dr. Farrar. Dr. Farrar had been explaining his "Positive Method" and Dr. Kingsley was called to open the discussion, and said: "Dr. Farrar's is undoubtedly the positive method; then there are other methods that have comparative merit, but I think my own is superlatively the best." No one present laughed more heartily than the ever genial Farrar.

Unfortunately for this "system," with the exception of a few basic principles first announced by him, it is likely that Dr. Farrar's system will die with him. His appliances though tremendously ingenious required great skill in their construction, and something more than genius for their application, because in the main each case was treated by Dr. Farrar with an appliance devised by himself to meet its individual peculiarities. The writer recalls a visit to Dr. Farrar's office several years ago, when he was shown several drawers and boxes filled with used appliances, which must have represented several thousands of dollars in value as bullion, and which attests to the fact that in Dr. Farrar's hands at least his system has worked a great boon to children suffering with malocclusion.

Dr. Farrar spent over fifteen years of his life writing, and rewriting his great work entitled "A Treatise Upon Irregularities of the Teeth and Their Correction," only two volumes of which have appeared, although the entire work was in manuscript long before the first volume was issued. But this work was a labor of love with Dr. Farrar and by the time he had completed his original task, he had so improved and broadened his technique that he felt it necessary to begin all over and thoroughly revise his book that it might be up to date. This was an unfortunate decision because it delayed publication for many years and deprived struggling orthodontia of an impetus that might have caused an earlier awakening. Moreover, it was impossible that so lengthy a work could ever express the author's latest thought. The writer had the privilege of examining this manuscript some years before the appearance of the first volume, and urged the author to give it to the world at once, but he shook his head negatively and said, "No! oh, no! That is but the skeleton! I must put the meat on it!" This "skeleton" was two of three thousand pages of manuscript, besides drawings and blocks for several thousand illustrations. How many men in dentistry do their work as thoroughly as did the great Farrar? What an example of patience and scrupulous exactness!

Dr. Farrar received his dental education at the Pennsylvania College



of Dental Surgery, from which institution he was graduated in 1865 at the head of his class. Later he decided that a thorough medical education was requisite to the proper practice of dentistry and to this end took a full course at Jefferson Medical College, graduating in 1874 with high honors.

On October 23, 1867, Dr. Farrar married Sarah M. Chandler, daughter of William and Rachel Chandler. One child was born, a boy, who died during infancy.

Dr. Farrar was always a believer in dental society activity and at different times was a member of the following societies: The Brooklyn Dental Society, Second District Dental Society of New York, the First District Dental Society of New York, Odontological Society of New York, American Dental Association, National Dental Association, Kings County Medical Society, New York County Medical Society, New York State Medical Association, the American Medical Association, Anatomical and Surgical Society of Brooklyn, honorary member of the Pacific Coast Dental Society, Wisconsin State Dental Society, American Academy of Dental Science, Sanitary Society of New York, the Philosophical Society of Brooklyn, Metropolitan Museum of Art, New York City.

As a man Dr. Farrar was kindly, gentle and affectionate. Children loved him, women admired and men respected him. He was a great genius and a distinguished gentleman. There have been and will be few like him.

R. O.

norman William Kingsley. m.D.S., D.D.S.

Dr. Norman W. Kingsley, an associate member of the American Academy of Dental Science, died February 20, 1913, at his home in Warren Point, N. J.

Norman William Kingsley, M.D.S., D.D.S., of New York City, was born in St. Lawrence County, N. Y., December 26, 1829, and was a son of Nathaniel and Eliza (Williams) Kingsley. He was married in 1850 to Miss Alma W. Shepard, daughter of the Rev. Silas E. Shepard, of Troy, Pa. He became a student of dentistry under his uncle, Dr. A. W. Kingsley, of Elizabeth, N. J. In October, 1850, he began practice in Owego, N. Y., and in May, 1852, became a partner of Dr. Solyman Brown, on Washington Square, New York City. In 1864 he went abroad and was received with distinction by the medical and surgical societies and the Odontological Society of London and in Paris by the French Academy of Medicine, before each of which he read essays. In 1865 he returned to New York, and in that and the following year organized the New York College of Dentistry, of which he was Dean



and Professor of Dental Art and Mechanism for three years. In 1867 he published a series of monographs entitled "Dentistry as a Fine Art." He was one of the founders of the New York State Dental Society in 1868 and twice president of the same. He was president of the New York State Board of Dental Censors for sixteen years, and formerly a member and president of the First District Dental Society and of the New York Odontological Society. He was an honorary member of the American Dental Society of Europe, the Odonto-Chirrurgical Society of Scotland, the Odontographic Society of Philadelphia, the International Medical Congress (London, 1881), and many others.

Dr. Kingsley was the author of "A Treatise on Oral Deformaties," the first text-book ever published on the scientific treatment of irregularities of the teeth.

As an artist Dr. Kingsley achieved considerable fame, principally in sculpture. His most notable work was a portrait bust of Whitelaw Reid, which was cast in bronze, and is now in the Lotos Club, New York, of which Dr. Kingsley was long a member.

New York State has produced many of the pioneers and leaders in dentistry, but it is safe to say that no one of them all has done more than Dr. Kingsley for the real elevation of his profession. By his talents he has shown that the highest type of dentist is a composite being; a master mechanic; both an artisan and an artist; a professional man and a scholar; and above all, a Christian gentleman. Those of us who knew him know that a good friend, and a brilliant man, has gone to his rest. While feeling the loss of our associate fellow, we cannot but rejoice in his splendid record of achievement, covering a long and useful life.

R. R. Andrews, T. O. Loveland,

H. A. BAKER,
Committee.

Boston, Mass., May 7, 1913.



SOCIETY ANNOUNCEMENTS

National Society Meetings.

NATIONAL DENTAL ASSOCIATION, Kansas City, Mo., July 8, 9, 10, 11, 1913

NATIONAL MOUTH HYGIENE ASSOCIATION, Kansas City, Mo., July 9-12, 1913.

Institute of Dental Pedagogics, Buffalo, N. Y., January, 1914.

FOURTH INTERNATIONAL CONGRESS ON SCHOOL

HYGIENE, Buffalo, N. Y., August 25-30, 1913. Secretary-General, Dr. Thomas A. Storey, College of the City of New York, New York City.

State Society Meetings.

ARIZONA DENTAL SOCIETY, Phœnix, Ariz., November, 1913. Secretary, Dr. H. H. Wilson, Phœnix, Ariz.

ILLINOIS STATE DENTAL SOCIETY, Chicago, Ill. Secretary, Dr. H. L. Whipple, Quincy, Ill.

MISSOURI STATE DENTAL ASSOCIATION, Kansas City, Mo., July, 1913. Secretary, Dr. S. C. A. Rubey, Warrensburg, Mo.

New Jersey State Dental Society, Asbury Park, N. J., July 16, 17, 18, 1913. Secretary, Dr. A. W. Harlan, 47 Crescent Ave., Jersey City, N. J.

Ohio State Dental Society, Toledo, O., December 2, 3, 4, 1913. Secretary, Dr. F. S. Chapman, Schultz Bldg., Columbus, O.

VIRGINIA STATE DENTAL SOCIETY, Old Point Comfort, Va., July 22, 23, 24, 1913. Secretary, Dr. C. B. Gifford, Taylor Bldg., Norfolk, Va.

WEST VIRGINIA STATE DENTAL SOCIETY, Parkersburg, W. Va., August 13, 14, 15, 1913. Secretary, Dr. Frank L. Right, Wheeling, W. Va.

WISCONSIN STATE DENTAL SOCIETY, Madison, Wis., July 22, 23, 24, 1913. Secretary, Dr. O. G. Krause, Wells Bldg., Milwaukee, Wis.



National Dental Association.

All reputable practitioners of dentistry and medicine are cordially invited to attend the 1913 session of the National Dental Association, which will be held in Kansas City, Mo., July 8th to the 11th.

This will probably be the most important meeting in the history of this association, owing to the fact that all the State dental societies that have met since the Washington meeting have voted to become constituents of the national.

The officers and committees have prepared an interesting program, but it is impossible to incorporate the clinical program in the journal announcements; however, the Clinic Committee does not expect to present the number of clinics which have been listed for the past few years, but have planned to offer a smaller number, which are classified so that they will be most interesting.

LITERARY PROGRAM.

"President's Address," Frank O. Hetrick, Ottawa, Kan. "Scientific Foundation Fund," Weston A. Price, Cleveland, Ohio. "Orthodontia and its Relation to Dentistry," Roscoe A. Day, San Francisco, Cal. "Crown and Bridgework," J. L. Howell, Denver, Colo. "The Missing Steps in Platework," Gail W. Hamilton, Council Bluffs, Iowa. "The Saliva." Percy H. Howe, Boston, Mass. "Conflicting Opinions Concerning the Manufacture and Use of Alloys for Dental Amalgams," Marcus L. Ward, Ann Arbor, Mich. "A Preliminary Report on the Action of As₂O₃," Herman Prinz, Philadelphia, Pa. "Physiological Action of Nitrous Oxide Oxygen, Analgesia and Anesthesia," Carl G. Parsons (M.D.), Denver, Colo. "Something of the Etiology and Early Pathology of the Diseases of the Peridental Membrane, with Suggestions as to Treatment," Arthur D. Black, Chicago, Ill. "The Value of the Radiograph in the Practice of Modern Dentistry," Howard R. Raper, Indianapolis, Ind. "Dental Educational Harmony," G. S. Junkerman, Cincinnati, Ohio. "Prophylaxis, Illustrated with Lantern Slides," Burton Lee Thorpe, St. Louis, Mo. "The Etiology and Progress of Dental Caries," Edgar D. Coolidge, Chicago, Ill. "The Application in Practice of What is Known Concerning the Diagnosis and Treatment of Diseases of the Dental Pulp," Harry B. Tileston, Louisville, Ky. "Periapical Infection," Clarence J. Grieves, Baltimore, Md.

RAILROAD AND HOTEL INFORMATION

The Central Passenger Association, the Western Passenger Association and the Southwestern Passenger Association have granted an open rate of two cents per mile in each direction in their territory, with



a minimum excursion fare of \$1. Tickets on sale the 5th to the 8th of July and good returning up to July 20th. The Trunk Line Association has declined to make any concessions. Additional information can be secured from any local railroad agent.

A list of hotels, and their rates, have been published and we save space in this announcement by referring you to the June journals. Those anticipating attending this meeting should promptly make reservation, if this has not already been done.

Frank O. Hetrick, President, Ottawa, Kan.

Homer C. Brown, Rec. Secretary, 185 East State St., Columbus, Ohio.

National Mouth Hygiene Association's Second Annual Meeting.

The second annual meeting of the National Mouth Hygiene Association will be held in Kansas City, Mo., July 9 to 12, 1913.

The Board of Governors will meet at the Hotel Baltimore at 9 A.M. on July 9th, 10th and 11th, to consider questions to be presented to the general body. These meetings are open to members of the association. Those having matters which they wish to present to the association for consideration must present them to the board at one of these meetings.

The regular meeting of the association consists of three sessions:

Friday at 1.30 P.M. (Open to the general public)

Friday at 8.00 P.M. (Open to the general public) Saturday at 9.00 A.M. (Open to the general public)

A very interesting and instructive literary program is to be presented.

The association has charge of the Mouth Hygiene Section of the Fourth International Congress on School Hygiene, and the Board of Governors' plan is to have, in so far as possible, the program duplicated at both the National Meeting and the Congress.

The most important subject to be presented to the association will be the question of "Ways and Means for Conducting the Campaign of the Association in its General Presentation of Mouth Hygiene to the Public." A complete, practical, economic and co-operative plan which will permit every section of the country to begin an active appeal to the general public will be presented for consideration. It is desirable that every member be present when this important subject is presented for discussion.

W. G. EBERSOLE, Secretary-Treasurer.

800 Schofield Bldg., Cleveland, Ohio.



Notable Features on the Program of the Hygiene Congress.

The Fourth International Congress on School Hygiene, and the first to be held in America, at Buffalo August 25th to 30th, according to an announcement of the executive committee, will be by far the most elaborate effort yet made in this country toward getting the problem of school hygiene before the world. The First International Congress was held at Nuremberg in 1904, the second at London in 1907, the third at Paris in 1910.

The objects of the Buffalo Congress are:

- (1) To bring together men and women interested in the health of school children.
- (2) To organize a program of papers and discussions covering the field of school hygiene.
- (3) To assemble a school exhibit representing the best that is being done in school hygiene.
- (4) To secure a commercial exhibit of practical and educational value to school people.
- (5) To publish the proceedings of this Congress and distribute them to each member.

In addition there is a plan on foot to effect a permanent organization for the purpose of carrying out school hygiene reforms in all the individual communities in this country, if not all over the world.

One of the interesting features of the Congress will be the presence of delegates representing the community interest in school hygiene, including those appointed by mayors and governors, by women's clubs, by school boards, boards of health, by mothers' congresses and charity organization societies and boards of trade. Their help is being solicited with a view of organizing the community in a campaign of school hygiene reform.

The program committee announces a program of two hundred fifty papers and fifteen symposiums, taking up hygiene from the following points of view:

- I. The hygiene of school buildings, grounds, material and up-keep.
- II. The hygiene of school administration and schedule.
- III. Medical, hygienic, and sanitary supervision in schools.

The contributors to the program make up a notable list of speakers, college presidents and professors; State, city and county commissioners of education; teachers and superintendents of public schools, medical college professors; State, county and city health officers; physicians in private practice, engineers and architects.

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Special discussions are being arranged on the following subjects:

School Feeding.—Arranged by the Committee on School Feeding of the American Home Economics Society.

ORAL HYGIENE.—Arranged by National Mouth Hygiene Association.

SEX HYGIENE.—Arranged by the American Federation of Sex Hygiene.

Conservation of Vision in School Children.—Arranged by the Society for the Prevention of Blindness.

HEALTH SUPERVISION OF UNIVERSITY STUDENTS.—Arranged by Dr. Mazyck P. Ravenel, University of Wisconsin.

School Illumination.—Arranged by the Society of Illuminating Engineers.

Relation Between Physical Education and School Hygiene.

—Arranged by the American Physical Education Association.

Tuberculosis Among School Children.—Arranged by the Society for the Prevention of Tuberculosis.

PHYSICAL EDUCATION AND COLLEGE HYGIENE.—Arranged by the Society of Directors of Physical Education in Colleges.

THE BINET-SIMON TEST.—Arranged by Professor Terman, Stanford University.

The Mentally Defective Child.—Arranged by Dr. Henry H. Goddard, Vineland, N. J.

Various citizens' committees of Buffalo are arranging an elaborate entertainment for the benefit of visiting delegates. There will be receptions and a grand ball, a pageant of school children, and excursion trips to the great industrial plants of Buffalo, and to the scenic wonders of Niagara Falls. The Boy Scouts will act as official guides.

Delegates will attend from every college and university of note in this country, from other leading educational and hygienic institutions and organizations, and from every country in which an active interest is being shown in the welfare of school children, which includes all the leading nations of the world.

The Congress is open to all persons interested in school hygiene upon the payment of a fee of five dollars. Application of membership should be sent to Dr. Thomas A. Storey, College of the City of New York, New York City.

President Wilson has accepted the honorary office of patron of the Congress. The president of the Congress is Mr. Charles W. Eliot of Harvard University. The vice-presidents are Dr. William H. Welch, of Johns Hopkins University, and Dr. Henry P. Walcott, president of the recent International Congress on School Hygiene and Demography, and chairman of the Massachusetts State Board of Health.



Foreign Speakers to be heard at the Buffalo Congress.

Among the prominent speakers expected at the Fourth International Congress on School Hygiene at Buffalo the last week in August, according to Secretary-General Dr. Thomas A. Storey, of the College of the City of New York, are the following notable delegates from abroad:

Prof. H. Griesbach of Mulhausen, Alsace, Germany, founder of these International Congresses and president of the First Congress held in Nuremburg in 1904.

Dr. L. Dufestel of Paris, France, medical inspector of the Paris Schools, and secretary-general of the Third International Congress on School Hygiene.

Dr. James Kerr of London, England, member of the London County Council, for many years an active leader in the field of medical inspection.

Dr. Otto Grennes of Christiania, Norway, organizer of the Statistical Exhibit, Department of Education, for the Norway Centenary Exhibition in 1914.

Dr. Ernesto Cacace of Naples, Italy, professor in Pediatry, Royal University of Naples.

Prof. L. V. Liebermann of Budapest, Hungary, professor Hygienic Institute, Royal University of Budapest.

Dr. R. Kaz of St. Petersburg, Russia, consulting and school oculist.

Dr. Frederick Lorentz of Berlin, Germany, member of the Society for School Hygiene, Berlin teachers.

Dr. W. Weichardt of Erlangen, Germany, Bacteriological Research Laboratory.

Dr. J. Bayerthal of Worms, Germany.

Dr. J. Brandau of Cassell, Germany.

Dr. Marx Lobsien of Kiel, Germany.

Dr. Theodore Altschul of Prague, Germany, sanitary inspector.

Dr. D. E. Jessen of Strassburg, Germany, International Commission on Mouth Hygiene.

Dr. Cornelio Budinich of Trieste, Austria, architect.

Dr. Mathilde Gstettner of Vienna, Austria, assistant oculist, Vienna Policlinic High School teacher, and secretary Austrian School Hygiene Association.

Dr. Leo Burgerstein, professor of the Royal University of Vienna, Austria.

Dr. R. H. Crowley of Bradford, England, Board of Education.

Dr. Cecil Reddie of the New School, Abbottsholme, England.

Dr. M. C. Schuyten of Antwerp, Belgium, professor of the New College, Brussels.

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Dr. Albin Lenhardtson of Stockholm, Sweden, director of Municipal School, Dental Clinic.

Dr. Hansen Hakonson of Trondhjem, Norway, headmaster, School Hygiene.

Dr. Daumegon, director of Health Department, City of Narbonne, France.

College Presidents and Professors.

Dr. G. Stanley Hall, president of Clark University, Worcester, Mass.

Dr. Huber W. Hurt, president of Lombard College, Galesburg, Ills.

Dr. Homer H. Seerley, president of States Teachers' College, Cedar Falls, Iowa.

Dr. William Foster, president of Reed College, Portland, Ore.

Dr. Anna J. McKeag, president of Wilson College, Chambersburg, Penn.

Prof. H. Augustus Wilson, Jefferson Medical College, Philadelphia.

Prof. DeLancey Rochester, Buffalo University, Buffalo.

Prof. James M. Anders, Medico-Chirurgical College, Philadelphia.

Dr. Robert R. Osgood, Harvard Medical School, Boston.

Dr. Leonard Nice, Harvard Medical School, Boston.

Dr. Winfield S. Hall, Northwestern University Medical School, Chicago.

Dr. F. H. Pike, College of Physicians and Surgeons, New York.

Prof. Theodore Hough, University of Virginia, Charlottesville, Va.

Prof. J. H. McCurdy, Y. M. C. A. College, Springfield, Mass.

Prof. C. F. Hodge, Clark University, Worcester.

Prof. T. D. Wood, Teachers' College, New York City.

Prof. L. W. Rapeer, New York Training School for Teachers, New York City.

Prof. William A. McKeever, Kansas State Agricultural College, Kansas.

Prof. James A. Babbitt, Haverford College, Haverford, Pa.

Prof. C. W. Hargitt, Syracuse University, Syracuse, N. Y.

Prof. Edwin O. Jordan, University of Chicago, Chicago.

Prof. Mazyck Ravenel, University of Wisconsin, Madison.

Prof. George L. Meylan, Columbia University, New York City.

Prof. David Spence Hill, Newcomb Tulane University, New Orleans.

Prof. C. E. A. Winslow, College of the City of New York, N. Y.

Prof. W. H. Heck, University of Virginia, Charlottsville.

Prof. R. Tait McKenzie, University of Pennsylvania, Philadelphia.

Prof. William H. Burnham, University of Worcester.



Prof. Lewis M. Terman, Stanford University, Stanford, California.

Prof. Bird T. Baldwin, Swarthmore College, Swarthmore, Penn.

Prof. Arnold L. Gessell, Yale University, New Haven.

Prof. Paul Phillips, Amherst Collège, Amherst, Mass.

Prof. J. P. Sedgwick, University of Minnesota, Minneapolis, Minn.

Prof. S. M. Gunn, Massachusetts Institute of Technology, Boston.

Prof. Joseph Raycroft, Princeton University, Princeton, New Jersey.

Dr. Arthur Beik, Clark University, Worcester. .

Dr. Elizabeth Martin, University of Pittsburgh.

Dr. William H. McCastline, University of Columbia, New York City.

Dr. H. H. Goddard, Training School, Vineland, N. J.

Dr. E. Herman Arnold, New Haven Normal School of Gymnastics, New Haven.

Dr. Dudley A. Sargent, Harvard University, Cambridge.

Dr. Amy Morris Homans, Wellesley College, Wellesley, Mass.

Dr. W. Davis, Iowa State Teachers' College, Cedar Falls, Iowa.

Dr. J. E. Wallace Wallin, University of Pittsburgh, Pittsburgh, Pa.

Delta Sigma Delta Fraternity.

The twenty-ninth annual meeting of the Supreme Chapter of Delta Sigma Delta Fraternity will be held at the Hotel Baltimore, Kansas City, Mo., Monday, July 7, 1913, at 10 A.M.

Business of importance and initiation has been arranged for the day, to be followed by the annual banquet in the evening.

R. Hamill D. Swing, Supreme Scribe.

Illinois State Dental Society.

The Illinois State Dental Society held its forty-ninth annual meeting at Peoria on May 13 to 16, 1913. The following officers were elected for the ensuing year: President, Wm. H. G. Logan, Chicago; vice-president, W. A. Hoover, Gibson City; secretary, Henry L. Whipple, Quincy; treasurer, T. P. Donelan, Springfield; librarian, I. B. Johnson, Onarga.

The 1914 meeting will be the golden jubilee of the society, to be celebrated in Chicago. Date to be announced.

HENRY L. WHIPPLE, Secretary.

Quincy, Ill.



West Virginia State Dental Society.

The seventh annual meeting of the West Virginia State Dentai-Society will be held in the Assembly Room of the Chancellor Hotel, Parkersburg, W. Va., August 13, 14 and 15, 1913. Opening session two o'clock, Wednesday, August 13th.

A cordial invitation is extended to all ethical members of the profession to attend our meeting.

Frank L. Wright, Secretary.

Board of Trade Bldg., Wheeling, W. Va.

Che South Dakota State Board of Dental Examiners.

The South Dakota State Board of Dental Examiners will meet at Sioux Falls, S. D., Tuesday, July 8th, 1.30 P.M. For application blanks and further information apply to

DR. A. L. REVELL, Secretary.

Lead, S. D.

Bridgeport Dental Society.

At the regular monthly meeting of the Bridgeport Dental Society the following officers were elected for the ensuing year:

J. L. Egan, president; J. J. Myers, vice-president; C. E. C. Atkins, secretary; R. H. Tuthill, treasurer. The executive committee: W. J. McLaughlin, chairman, B. E. Turney, W. H. Ryan.

At the close of the business meeting the annual banquet was served at "The University Club."

Dr. Clarence E. C. Atkins, Secretary.

Research Workers Wanted.

Competent research workers are wanted for the National Dental Association. State qualifications, experience, languages read, and preference for pathological, biological, pharmacological, mentallurgical or anatomical work. Address, Weston A. Price, Chairman of Committee of the National Dental Association for Scientific Foundation Fund, 10406 Euclid Avenue, Cleveland, Ohio.